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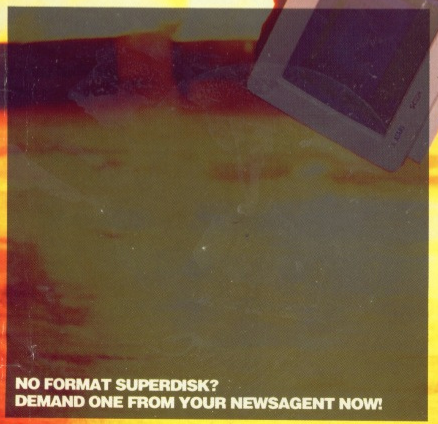

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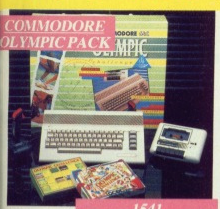

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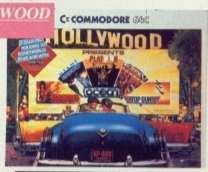

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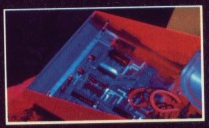

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ST

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AMIGA

Wicked – playable demo of Activision's monstrously addictive game; MandelShow – create infinitely complex pictures with this Mandelbrot generator; VCommands – add powerful string handling to AmigaDOS; Utils – a calendar and number base converter to add to Workbench.

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FROM PACMAN TO PORSCHE.....94

Megabucks for megabytes; that's the promise many software houses give to aspiring programmers. But are these just exaggerated claims, or can you earn serious petrol money from your programming talents?

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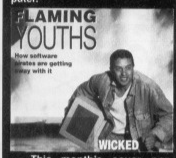
MONTEIRO'S MONTH

Thank goodness they've got rid of that awful picture of me! Issue 13? Unlucky? I think not. It's our biggest and brightest ever; and after this one we're multiplying. A magazine for each machine – both titles will sport a disk and come packed with information for your computer.



This month's cover portrays a hacker, cracker, pirate – call him what you like – walking away from the inferno (justice, the law, whatever) unscathed. He's been to hell and survived. He's above the law. He's the modern day anti-hero so beloved of *2000AD*. The law may apprehend him for a while, but ultimately it's case dismissed. Or so it seems.

The recent farce concerning the Scottish pirates, who were let of the hook even though they openly cracked games and sold them, was outrageous and strengthens the notion that software thieves really are untouchable. They fought the law and won. It looks very much as though they will continue winning until Parliament gets its act (ho, ho) together.

Thanks to Ashton James for producing such a stunning cover shot – and thanks to the apprentice stuntman who braved the scorching flames. The ST monitor you can see in the picture was near melting point; it was certainly too hot to hold without protective gloves. What's really extraordinary is that in another shot, which you can see on page 25, there's a chap even closer to the flames holding an Amiga.

The blaze was created by filling trays with a mixture of petrol and diesel and flicking a match into the concoction. The resulting inferno lasted five minutes. During that time a couple of guys ran in as close to the flames as possible and stayed there until they started to smoulder. Things were complicated by the fact that the ST monitor had to display something.

Enough! Enjoy the last issue, and see you in *ST Format*.

FORMAT IS TWICE AS NICE AS MAGAZINE SPLITS

AND THEN THERE WERE TWO...

From next month *ST Amiga Format* will be no more. In its place will be two magazines, *ST Format* and *Amiga Format*. Each title will come with a 3.5-inch disk packed with over 800K of programs for the relevant machine. The price for each remains at £2.95.

"Readers will now get twice the amount of programs on disk, twice the number of relevant articles inside the magazine and consequently twice the value for their pennies when the doubling takes place," enthused *ST Amiga Format*'s publisher Greg Ingham.

The division marks the confidence *ST Amiga Format* has in the ST and Amiga markets. Both are now strong enough to warrant a magazine with a disk on the cover every month - this certainly wasn't the case early last year.

Most of the current *ST Amiga Format* team will be moving on to produce *ST Format* while the team which until last month produced the award-winning *ACE* magazine will be handling *Amiga Format*. *ACE* is no longer published by Future Publishing, having been taken over by the London-based EMAP.

The first issue of *Amiga Format* hits the streets on Thursday July 13. Said *Amiga Format*'s editor Bob Wade, "We're kicking off with a bang. Features planned include video titling, review of the A2500, an interview with Commodore's technical support manager Dr Rahman Haleem, *Amiga Format*'s top ten favourite games, and music and graphics sections compiled by contibuting editors."

ST Format issue one is due out a week later - July 20 - and promises a look at Atari past, present and future; a disk tracker DIY hardware project; how American techno-rock group Cassandra Complex use STs and MIDI on tour; a special feature on machines that go bump in the night and megabucks-worth of competition prizes.

A special disk format has been created for the ST magazine which will let single sided drive users read from the top side and double sided drive owners read data from both sides of the disk, so a full 800K will be available to those with double-sided drives.

■ A flyer is being sent to *Format* subscribers requesting them to transfer their subscriptions to either *ST Format* or *Amiga Format* magazine. If you don't receive anything within the next few weeks, get in touch with Future Publishing's subscriptions department at the Old Barn, Brunel Precinct, Somerton, BA20 1EJ Somerset (0458 74011).

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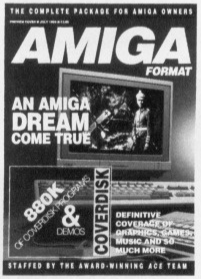
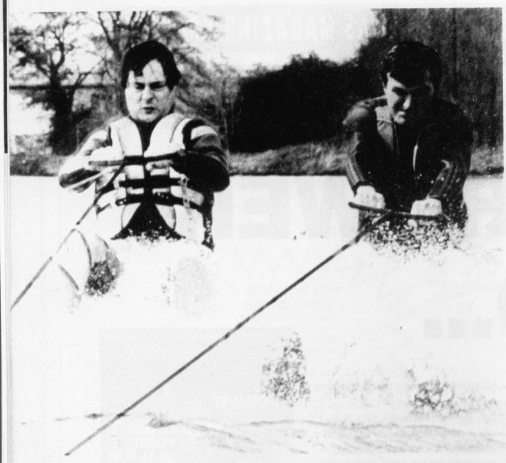


■ *Amiga Format*: TV, top ten games and the new Amiga.

SOMETHING FOR NOTHING

With the demise of *ST Amiga Format* we have one or two of that most highly prized object, the *Format* Personal Organiser left on the shelf and in a fit of corporate generosity we've decided to give them away.

Anyone wanting an *ST Amiga Format* Disk Organiser can get one for the amazing sum of 38p in stamps. Just send the stamps together with your name and address to *ST Amiga Format* Organiser Giveaway, 4 Queen Street Bath BA1 1EJ. There's only a limited supply - so hurry. Your stamps will be returned if we run out by the time your order is processed.



LICENCED TO DROWN

They're back – the dynamic Domark duo, Dominic Wheatley and Mark Strachan, demonstrating how not to emulate 007. And all in the cause of Domark's forthcoming Bond game, *Licenced to Kill*, whose plot will closely follow the film of the same name. Let's hope it's a bit better than the last one, *Living Daylights*.

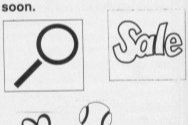
DESIGNER PAGES

Two new packages to look out for from Gold Disk are *Structured Clip Art* and *Professional Page Templates*.

Templates contains over 50 classic layouts for use in *Professional Page*. There are designs for adverts, newsletters, business cards, envelopes, flyers, brouchers, reports and layout grids. The accompanying booklet is very well put together and provides valuable suggestions on how to improve your desktop designs. *Templates* is so good that it is bound to cost a small fortune.

Structured Clip Art offers a collection of professionally drawn clip art for use in *Professional Draw* and *Professional Page*. Because the graphics are structured, it is possible to resize the images without any loss of resolution. There's also a utility for converting the clip art into bitmap graphics. The converted images can then be used in art programs that handle standard IFF file formats. Like *Templates*, *Clip Art* has a professional feel to it. The number of images is vast and of high quality.

HB Marketing (0895 4444433) and the Amiga Centre Scotland (031 5574242) will be handling the distribution in the UK, and will be setting prices for the products soon.



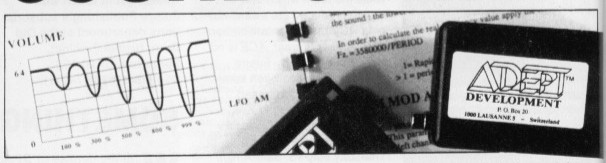
SOUND SENSE

HB Marketing (0895 4444433) are now distributing Adept's *Real-Time Sound Processor*. The £99 package lets you sample, alter and output sounds in real-time. It's not like standard sampling software because the emphasis is on editing the incoming wave for immediate playback rather than playback at a later date. In fact, you can't store samples - they come in one end and go out the other. *Real-Time* is the sort of hardware/software combination you might use to fire off samples via a MIDI keyboard.

Real-Time consists of the sampling hardware which plugs into the parallel port, protection kludge which slots into the joystick port and processing software. The processing software has a fixed sampling rate of 50KHz and has provision for amplitude and frequency modulation.

Although the manual looks good, it's full of errors: two spelling mistakes and 12 grammatical errors on the second page is going some!

The preliminary impression of *Real-Time* is of a device that fails to reach its target audience of professional users. There's no way you would use *Real-Time* in a music studio as the hardware only samples to 8-bit resolution. It's competent, but really should do more for less.



BASICALLY DIFFERENT

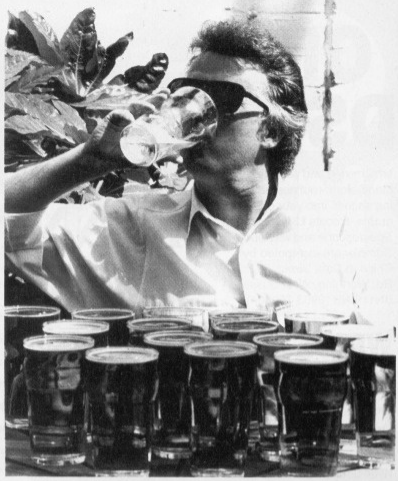
Users of *GFA BASIC* on the ST will be pleased to hear that version 3.06E is shipping. The latest revision follows on from 3.04 (there was no version 3.05) and contains the following updates: n Patchable areas in GFABASIC.PRG and GFABASO.PRG have been documented. n File reading and writing is greatly speeded up due to an increased cache.n Umpteen corrections to the manual.

Registered users of ST *GFA BASIC* can upgrade for the price of a blank disk and postage. GFA User at 186 Holland Street, Crewe, Cheshire CW1 3SJ are handling the updates.

The compiler for ST *GFA BASIC* V3 is expected in late June. Price hasn't been finalised, but is expected to be less than £30. A 180-page manual is to be supplied with the compiler; this is an enormous leap from the 20-odd page offering bundled with the earlier version.

An upgrade for Amiga *GFA BASIC* is just round the corner, while the BASIC compiler will be launched late in the summer.

Both ST and Amiga versions of *GFA BASIC* V3 have been dropped to £59.95. *GFA BASIC* is available from GFA Data Media, Box 121, Wokingham RG11 9LP (0734 794941).



THE BEER'S ON BRANSON

Refreshing the parts other games can't reach – Virgin's general manager, Brynn Gilmore, toasts (several times) the re-emergence of the recently dormant Virgin Games label.

Releases scheduled for later in the year are *Gemini Wing, Double Dragon II, Shinobi, Continental Circus* and *Ninja Warriors*.

LE MICRO DE MA TANTE

Ah mes petits shoes, un programme pour perfecting votre Français from LCL. *Micro French* c'est pour des students de GCSE et vous offers pronunciation, volcabulaire, verbs et tests de comprehension.

Demandez le a LCL (0491 579345) pour £24.

WHOOPS! CORNER

Archipelagos Demo – the continuing saga. Still having problems? Try changing to medium resolution before running. Thanks to Marcus Mansukhani for that one.

X-CAD – it's not being distributed by Taurus as mentioned last month, but by CAD Vision on 01-603 3313. Also distributed by Vision is Amiga *X- CAD Professiona*l, a £399.99 package requiring 2Mb minimum.

Instrumental Changes – Cheetah's telephone number is in fact 0222 555525 and not 0222 22190.

QUICKIES

■ Third Coast, manufacturers of various hard drives for the ST, are to launch a series of **memory upgrade boards** for the ST and Amiga. 2Mb and 4Mb boards for the 520 and 1040 are promised. For the A500 there's talk of a 2Mb board while the A2000 will see 4Mb and 8Mb boards. Also coming soon for the ST are several go-faster boards; a 16MHz-rated 68000 replacement for the standard 68000, a 68010 board with optional 68881 maths co-processor and a 68020 board with optional 68881 or 68882 maths processor. You can get further information on all of these from Third Coast on 0257 426464.

■ DTV Systems, a subsidiary of Elgin-based Elite Video, are suppling ready-to-run **desktop video systems** comprising STs and Amigas. Entry level kits include a computer, video titling software and a genlock device. DTV's Starter Pack for the Amiga for instance – which consists of an Amiga A500, A501 expansion RAM, Minigen genlock, TV modulator and TV Text software – costs £629.95. You can sample what's possible with DTV's kits by sending £5 to 100b High Street, Elgin, Scotland, IV30 1BM (0343 44581) and asking for the VHS Demonstration Video. The video includes examples of graphics and video software for both machines and shows clips from promotional videos, adverts, logos and titling produced using DTV's setups. The £5 is redeemable on return of the video cassette.

■ The Amiga version of Edward Penman's **Dungeon Master Editor** is now ready. It's selling for £10.95 plus £1 postage and packing from Software Express, 212-213 Broad Street, Birmingham, B15 1AY (021 6438358). The ST version has been out for some time, and is available for the same price. The Editor lets you customise the many levels that consitiute Dungeon Master – in this way you can make it as easy or as difficult to complete the game.

■ Something to watch out for in the public domain is zzSoft's ST DTP package **Easy Text.** Easy Text can import all types of First Word document. Imported text may be left and right justified – and can be displayed in columns. Degas format images can be imported anywhere into the page. Numerous graphic fills are available enabling many different effects to be created. Screen updating is remarkably fast – even when clip art is being displayed. Printed output to most nine-pin dot matrix printers is possible. Details from 3 Riverdale House, Mytholm Close, Hebden Bridge, West Yorkshire, HX7 6BP (0422 845528).

MORE ON SOUNDS

Innovated Software have completed work on a back-up software package, *IS Spectroscope*, for their ST sound sampler. *Spectroscope* makes it possible to create, modify and analyse samples and use the results in your own software or other digitising packages.

Small sounds can be captured and altered. An FFT (fast Fourier transform) analysis of the sound is possible. Unfortunately the first F in FFT should be changed to DS, for dead slow, because producing such a graph is painfull. Included in the package is the ability to create new mathematically pure sounds by hacking existing waveforms or creating your own from scratch.

While there is a need for a tool such as *Spectroscope*, the manual assumes too much of the reader and is consequently unusable. It's hard to justify £39.95 on a package that doesn't look or feel the part. It might be an excellent package – but you wouldn't believe it from reading the manual.

Spectroscope is best used alongside Innovated's *IS Sound Sampler* which offers digitising speeds from 1 to 48kHz, filtering, oversampling, reverb, real-time mixing and comprehensive stand-alone routines for including sounds into your own programs. It costs £69.95. Both *IS Spectoscope* and *IS Sound Sampler* are distributed by Chips at Data Direct, 53 Rugby Rd, Worthing, West Sussex, BN11 5NB (0903 700804).

WRITE RIGHT

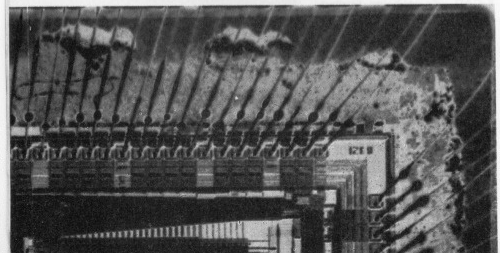
Cavendish of Tottenham Court Road, London, have introduced yet another word processor to the ST scene. *That's Write* boasts automatic indexing, automatic text formatting and multi-column page layouts.

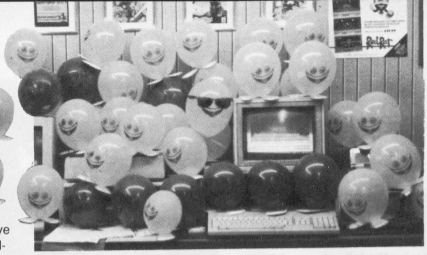
Among the numerous features there is a font editor, international editable keyboard layout, integrated spell checker, dictionary (available in several languages), four cut and paste buffers, *First Word Plus* file conversion utility, automatic document backup after pre-determined time, paragraph and page stylesheets, graphics support and numerous text style.

That's Write will work with all machines and is available from Cavendish (01-323 4761) for £129.

LOOK AT IT GO!

Bored waiting for your Amiga to process your precious data? Speed up your micro with a processor accelerator board from Third Coast Technologies (0257 426464). The £149 accelerator cranks up the 68000's speed to 14.32MHz (as opposed to its usual more leisurely 7.16MHz) and a 35-40% increase in speed is claimed. You can also add a 68881 maths processor to further turbocharge your machine.





RUNNING OUT OF TIME

Little wonder the entire Red Rat programming team have smiles on their faces; they've just completed the zany *Time Runner* game featuring Captain Crumble. Zoom into the time gate and blast your way through meteorite-strewn interspace on a desperate search across unknown worlds, meet malevolent monsters, shiver at the horrible inhabitants, tangle with the mutant creatures, swarm through the lost jungles, outwit aliens... Yes,it's sheer madness. And it's available in a computer store near you for £19.99.

THE WORDS WORKS

With *ST Keyword* you need never be stuck for a word again – at least, that's what Swift Software, creators of the word finder/thesaurus, reckon. Keyword lets you search through a database of words by meaning, thus enabling to find exactly the best way to express yourself.

Keyword installs itself as a GEM desk accessory, so it's accessible from within most other GEM-compatible software. *Keyword*'s dictionary can be located on floppy, hard disk or RAM disk. Around 12,000 synonyms and antonyms are contained in the dictionary.

All you have to do is enter a word – or the first few letters of the word if you're unsure how to spell it – and *Keyword* searches through its dictionary for all words starting with the letters you entered. The results are displayed. After that you can click on the spelling of the word you wish to use; *Keyword* does a second search to find all words with the same meaning as the word you selected. You can continue selecting words and finding alternative meanings for them until you're satisfied with what you've got.

Keyword is much like Kuma's *K-Roget* – it's just less polished and less pricey.

Swift are offering a calculator watch worth a notional £4.95 for a limited period to purchasers of their £29.95 word finder.

■ **Swift Software, 347 London Rd, Hazel Grove, Stockport, Cheshire, SK7 6AA (061 4560926).**

MARKETED by Palace Software, The Old Forge, 7 Caledonian Road, London N1 9DX - Tél. : 01.278.0751

GOLD DUST

Electronic mole extraordinaire STEVE GOLD tunes in to what's happening to the ST and Amiga on the other side of the Atlantic.

Despite all the hoo-ha last year when the ST laptop – Stacey – was first anounced, there's still no sign of the machine hitting the shops. This could be, say sources, due to the decision to modify the LCD with the addition of a backlight.

The trouble with this idea, excellent though it is, is that it adds considerably to the 10 pounds that Stacey already weighs. Because of this, don't be too surprised if Atari begins shipping the machine as a 'transportable' later this year. It's even possible that the battery-power option may be scrapped.

The good news regarding Stacey is, however, that TOS 1.4 will be fitted on the machine, although sources in the US say there are still problems with some of the code in this, the latest ST operating system.

MAC MAGIC

Dave Small of Gadgets isn't the only person who seems to have cracked Mac emulation on the ST. A small firm called CEKA Enterprises in the US (0101 415 4742641) is readying an internal hardware board for the Mega ST series, with versions planned for the rest of the ST series (including the Stacey) which emulates the Apple Mac in fine style.

CEKA's board for the Mega ST series will be out sometime during the third quarter of this year, but in the meantime there's no harm in giving them a call.

Firm pricing on the Mac emulation boards has yet to be fixed as ST Amiga Format goes to press, but the great thing about CEKA's board is that no Mac ROM chips are required. According to James McHugh of CEKA, the new boards will do everything that the Mac ROMs do without using Apple's program code.

Finally this month, just room to squeeze in a rumour that plans to scrap 1040ST in favour of a 1MB Mega ST machine have been shelved. The reason? Atari is planning a new stable of STs for shipment later this year. Don't ask me what these new machines are - only the Tramiels and a few other people know!

NO MORE PERFECT WORDS

Many Amigans will have become aware by now that Wordperfect Corporation in the US has ceased product development on the Amiga, despite continuing with its word processor on the Atari ST. In a recent conference on Usenet, the Unix network, Pete Peterson of Wordperfect defended his companies' stance on this.

It appears that WP's problems stem from the success of the A500, which *Wordperfect* doesn't run on well without mucho disk-swapping. Coupled with this, the package doesn't appear to sell well on the West German market. Wordperfect decided it was time to call a halt.

The story doesn't end there, however, as Wordperfect Corporation is still keeping on two of its five Amiga programmers to iron out any bugs in *Wordperfect* on the Amiga, and has committed itself to minor upgrades to cope with improvements to the Amiga's design.

Furthermore, Peterson does not rule out the possibility of *Wordperfect 6.0* being ported from the Mac version to the Amiga. There were plans to do port v5.0 from the Mac to the Amiga, but the printer driver code was wholly incompatible. *Wordperfect 6.0* will be based on a modular construction, so it shouldn't pose the coding problems that v5.0 did. Here's hoping, anyway!

MAKE IT MODULAR

M2S, the Dallas-based software house, has just released a major upgrade to its Modula-2 development system. The new package, which costs a measly $385 (are you listening program developers?) has a compiler capable of handling 45,000 lines of code a minute, and is accessible from within the editor or Workbench, as well as from the command line itself.

The package also includes a single-pass Modula-2 compiler and program linker, program profiler, symbolic debugger, and several other high-end compiler features as standard. As if this wasn't enough, the program runs in just 512K of RAM, making it ideal for the A500 provided Kickstart 1.2 and Workbench 1.3 or later are fitted. Interested? Call 0101 214 3405256 for further details.

One of the earliest uses for the Amiga when it was first launched was that of video processing. Time has marched on, and the price of the Amiga has fallen in real terms. A Topeka, Kansas, firm called Newtek has spotted this fact and released the *Video Toaster*, which it claims is the first broadcast quality video computer system for the Amiga 2000.

BREAD

The capabilities of the *Video Toaster* include digital video effects as seen on programs such as Top of the Pops. Newtek claims that hundred of effects are possible, including pushes, pulls, flips, tumbles, mosaics, fisheye, mirrors, zooms, and many others. Furthermore, because all these effects are programmed within software, upgrades to the library are easily added.

The *Video Toaster* is an add-in card coupled with software for the Amiga 2000. Newtek have said they developed their own operating system specifically for creating and controlling video effects, as well as 3-D digital effects package.

Also available for the *Video Toaster* is a time-base correction unit, allowing the system to be used with any video source, such as video cameras and recorders, which do not have an external time-base correction system.

The bad news is that the *Video Toaster* costs a heady $1,595, plus another $1,495 for the time base correction system. But when you consider that's for a PAL/NTSC full digital manipulation package for the A2000, it's superb value for money. Anyone fancy an ITV franchise? Newtek is on 0101 913 3541146.

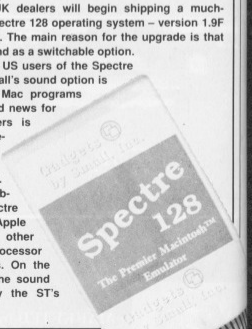
SPECTRE UPDATE FROM THE STATES

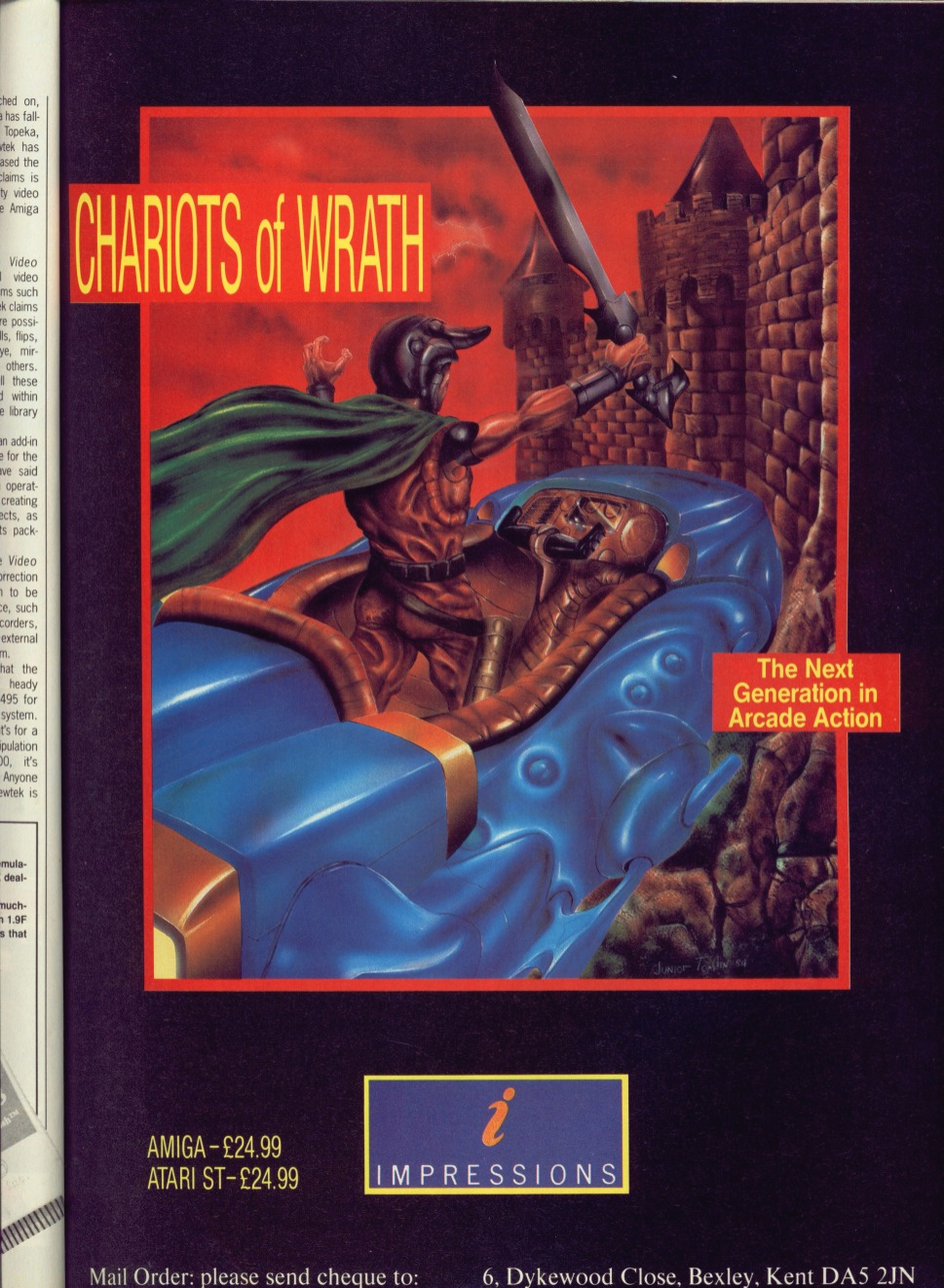
UK ST users will now be familiar with the Spectre 128 (the Mac emulator for the Atari machines) now that Hisoft and several other UK dealers are stocking the cartridge.

It's quite likely that UK dealers will begin shipping a much-improved version of the Spectre 128 operating system – version 1.9F – by the time you read this. The main reason for the upgrade is that v1.9 now includes Mac sound as a switchable option.

First impressions from US users of the Spectre 128 are that when Dave Small's sound option is enabled the execution of Mac programs slows down a lot. The good news for sensible Spectre 128 users is that the sound option is useful, if only for slowing down the execution of the higher levels of Mac games.

The reason for the problem with v1.9F of the Spectre software is that, on the Apple Mac, dedicated hardware other than the 68000 microprocessor handles the sound effects. On the Spectre 128, the bulk of the sound processing is handled by the ST's microprocessor.

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The year is 2050. The day of paper has come to an end; life will never be the same again. Fantasy or fair prediction?

With the computer taking over everything from your local newsagent to your local dole office, so far the paper industry has escaped largely unscathed. In fact instead of reducing paper consumption, the computer is now responsible for more waste-paper than an issue of The Sun. Remember all the useless junk mail that drops through your letter box because of a tiny entry in a database.

But the day when you can finally put down your Parker Supreme might not be as far away as you think. Computers are increasingly encroaching on the paper industry and the ripples are only just beginning.

LIBRARY ROUTINES

Libraries have already begun to absorb computers inside their crusty facades with many counties removing their old-style library cards altogether. Microfiche made achievements in this direction some years back but the British Library is now actively encouraging the small libraries to venture into computer systems. The computer does, after all, offer an instantly-updatable picture of every title in the library on offer under a range of sub-headings.

This may well replace paper in a limited fashion but the real achievements come when an entire novel or reference book can be digitally stored in the memory of a micro-sized machine. Terminals in smaller libraries could then offer the same kind of service as the larger ones. An entire book could be viewed at a terminal allowing instant access to a vast mount of information. As new kinds of printers use techniques like electrostatics to transform printing speeds, there may even come a day when the novel may be printed out to order and taken home.

ON-LINE KNOWLEDGE

This might all seem far off into the future but it's certainly not an impossible dream. Movements in this direction are already happening. Several years ago a commercial system sprung up on a US bulletin board offering information taken from reference books. The system was called Knowledge and gave access to thousands of pages of information taken from books found in libraries across the States. The idea was that registered users can go into the system and offer key words which are then searched for in the material and correlating articles are displayed. Alternatively a heading such as 'tiger hunting' could be supplied and suddenly everything under this title could be available with further sub-options to specify particular areas of interest. All information on the screen

WASTE PAPER

Will there ever come a day when paper is obsolete and the computer screen takes over completely? MARK HIGHAM investigates.

can of course be captured into a buffer and printed or displayed later.

This type of system is gradually finding an audience in Britain although on a much smaller basis. Doctor's notes and case histories are already supplied online to members of the medical profession so just how far away is the same format for an entire library?

It's impossible to tell at the moment because the amount of space available to hold such information is limited. Developments aimed at libraries and booksellers are all very well but problems with memory remain. CD ROMs and optical disks do, however, offer an answer.

The CD ROM is capable of holding a massive 800Mb on a standard CDV disk which opens up some really big opportunities. It's already possible to hold the complete Oxford Dictionary, Roget's Thesaurus and the Bible all on one disk. The BBC's Domesday project three years ago stored information about every street in the country and encyclopedia-like entries on Britain on just two disks. Another disk stores the postcode and 'social classification' for every house in England.

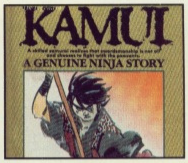
PAPER CHASED

So what about getting rid of paper altogether? The most essential change is to reduce our dependence on paper. Instead of turning to a sheet in front of you, why not pick up your laptop computer instead? Laptops are capable of storing massive amounts of data; it's quite possible to wander down to the nearest branch of W. H. Smith armed with a blank disk and pick up the complete range of daily newspapers, which could be read straight from a monitor screen. But our natural inclination to turn to a printed sheet must be overcome first.

To really take over from paper laptops will have to be light, extremely thin

COMIC CHARACTERS

The comic industry has been benefitting from the computer's first tentative steps into this field. Originally all comics were hand-drawn and then coloured, sent off to a repro house and turned



into books. The Japanese are currently facing a revolution in this field with a whole range of 'modern' comic adventures appearing on the scene. These tackle such serious subjects as nuclear war and politics, aiming to appeal to a wider age range of readers. With increased readership, more serious techniques are being applied to the development side and these are increasingly involving computers.

A new comic adventure, The Light Brigade, is published in the UK by Trident and makes limited use of computers in its design. The story features a computerised setting and many of the backdrops are designed on computer. An Amstrad PCW is used in the process with hand-drawn images being scanned into the machine using a Masterscan scanner which fits onto the printhead of the Amstrad printer. The pictures are then blown up to ridiculous proportions and then shrunk back down again with the result that a block effect is achieved. These designs are then positioned down the side of the strip.

Yet more achievements have been made by a company called Grafascan based in Dublin. They use computers in the colour separation of their comics. *Best of Brave and Bold*, *DragonLance*, and *Doom Patrol*, and have all been able to show a great number of improvements in a wider variety of colour. Using the computer in this area ensures that precisely the right colour can be used and airbrush effects, colour graduations and repeat design opportunities are easily done.

Nigel Kitching, the artist on the Light Brigade, concedes that computers could one day be used as a massive database to hold limbs and a library stock of character moves and then these could be introduced into a strip with a printer or plotter providing a hard-copy output of the comic strip. "The animations would become very stilted – it's a step I would never like to see implemented," says Nigel.

We are giving away 13 Trident T-shirts to the first 13 readers to write in and ask for them – the easiest competition in town! Write to Trident Competition, ST Amiga Format, 4 Queen Street, Bath. BA1 1EJ.

"WITH THE SPLINTER DESTROYED, CARROLL'S BREAK-IN BEGAN TO SHOW UP ON THE BANK SECURITY PROGRAM."
"IN THE MEANTIME WE HAD OBTAINED CLEARANCE TO CARRY OUT OUR OPERATION AS ORIGINALLY PLANNED."
"NEVERTHELESS, CARROLL WOULD HAVE EXITED THE PROGRAM AND ESCAPED INTO THE PICTURE, IF NOT FOR WHAT HAPPENED NEXT."
PERHAPS WE COULD GET ON WITH IT THEN...
EMERGENCY GET OUT!
YOUR SUBORDINATES HAVE NOT BEEN HARMED, MR. CARROL. BUT YOU HAVE ALL DONE A GREAT DEAL OF DAMAGE, AND WE...
Oh, no.
"SORRY, CARROLL. WE'VE OVER-RIDDEN YOUR EXIT..."

and have very high quality displays. Few companies have explored the possibilities of a paper-thin computer despite the increasingly miniaturised technology in computing and liquid-crystal screens.

It would also need to be able to read handwriting in order to communicate with a host computer and could hold contracts, notes or other hand-written material. The Post Office are currently particularly interested in technology to read handwriting. Computers are already employed to read the post code on letters to help sorting. A machine capable of reading handwriting will be with us soon.

People will need to trust the computer to be prepared to give up the security of paper. However, until then the computer looks likely to continue slowly stepping into paper's territory. It is already possible to purchase simple

■ **The Pocket Speller above is the first step away from books. Over 85,000 words are crammed into Pocket Speller's circuitry – soon the entire works of Barbara Cartland could be placed in an object no larger than a watch.**

computers which hold the entire dictionary featuring a small keyboard and LCD display.

Once everyone owns their own personal computer and can stop playing *Tetris* for 10 minutes, then progress can really begin. Already some mail-order companies allow orders to be made via computer without any need at all for any written work to surface, and the Stock Exchange is almost entirely electronic – except for the banknotes the brokers take home each month.

Increased portability and reliability are just the start. Imagine a world where paper is almost as eccentric as the one-wheeled bicycle. It will make for an increasingly efficient and tidy world and that can't be a bad thing. ■

Accounting for Small Business

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1	Bank [1]
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4	Sales
5	Purchases
6	Journal
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Cash Position to Date

Bank [1]	1,245.89	Dr
Bank [2]	78.00	Cr
Cash	120.00	Dr
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Analysis Points	= 65	Max: 500

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*"Actually using the program is very simple, everything is under the control of simple menus, generally operating through a split screen, which has options and prompts on one half and a working area on the other. Even people who know nothing about accounts or PC's should have few problems . . . If you're running a small business, **SBA *Xtra*** should be just fine for you."*

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ST UPDATE

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Disk type: 3.5 inch [ ], 5.25 inch [ ]
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EQUINOX

Electronic Arts have brought out everything from paint packages to Populous *and now they're offering you the opportunity to win the whole caboodle.*

Without doubt, *Degas Elite* is the most popular art package ever released and is constantly used by programmers. The extensive Deluxe range of software including *Deluxe Print* and *Deluxe Video* has taken the Amiga scene by storm and *Deluxe Paint* is largely regarded as the definitive art package for the Amiga.

On the less serious side, *Battlechess*, the *Archon Collection*, the twisting paths of *Powerdrome* and the wacky arena of *Zany Golf* were all created by Electronic Arts. To top it all, their current number one hit is *Populous*, destined to be one the biggest selling games of the year.

You can win all of this and loads more in this competition.

Electronic Arts are generously giving away their entire range of software for whichever machine one lucky reader possesses. So why not answer the three questions below and send your answers on a postcard to EA SOFTWARE COMPETITION, ST AMIGA FORMAT, FUTURE PUBLISHING, 4 QUEEN STREET, BATH, BA1 1EJ. It's important that you remember to include the name of your computer otherwise you won't get a jot. The winning entry will be pulled from a hat on July 13 so make sure you have submitted your entry by then.

QUESTIONS

1) *Populous* featured warfare between two characters, who were they?
- a) Mrs Thatcher and Nigel Lawson
- b) Joan Collins and her wardrobe
- c) God and the Devil

2)*Interceptor* was a game involving which type of craft?
- a) Aircraft
- b) Hovercraft
- c) Sinclair C5s

3) What is the name of Electronic Arts' most recent art package on the ST and Amiga scene?
- a) *Rolf Harris' Art Studio*
- b) *Deluxe Paint III*
- c) *Picasso Paint*

RULES

1. Competition entries must be received by July 13 if you want to participate. Anything received after this date will be sacrificed in our incinerator.

2. Employees of Future Publishing and Electronic Arts may not enter unless they want to be packaged and dispatched to Iran.

3. The editor's decision is absolutely final and no correspondence will be entered into – so no complaining if you don't win.

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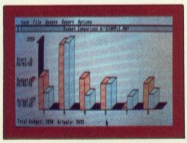

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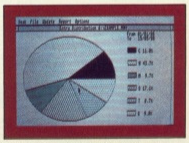

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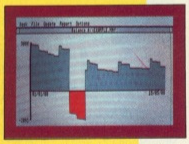

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Placed on behalf of FAST (Federation Against Software Theft)

Are software pirates above the law? What can be done to stop them? STEPHEN COGAN discovers what hackers and pirates get up to behind closed doors.

Hacking; there are two reasons for doing it, for fun and for profit. Those who do it for pleasure are called 'crackers' while 'pirates' earn a living from their criminal activities.

Crackers do what they do for enjoyment – to them it beats playing the games, it's one mind against another; software protector versus cracker. For pirates it's no game – their income depends on them breaking into games and selling the hacked versions to the general public.

At the moment game copiers give high prices as their main motive. This is a vicious circle; the less software sold the less revenue companies receive so the higher prices need to be.

Some crackers hack games and then distribute them to their mates. Because of this most software houses don't make a distinction between crackers and pirates, but pirates definitely lose the software industry money; the case against crackers isn't proven.

Rampant piracy can kill the software industry. Take the Dragon for example; in the early days games sold in huge numbers – high, if not higher, than a good eight-bit game today. Widespread pirating decimated sales and many programmers in the Dragon market left to go 16-bit because pirates were reaping the rewards of their hard work.

Bob Hay of the anti-hacking organisation FAST (Federation Against Software Theft) views crackers as irresponsible since they are meddling with peoples' livelihoods: "If a programmer loses sales through piracy they may well think twice before starting on another game. This exodus of programmers from the leisure industry could get much worse unless peoples' attitudes towards copying games change."

SINKING THE JOLLY ROGER

Fighting piracy is an uphill struggle due to outdated laws – this should change with the introduction of the Copyright, Design and Patents Bill which is presently going through Parliament.

At the moment someone selling illegally copied software or selling without a license is liable for a fine of up to £2,000 or a prison sentence of two months. In some cases both can be applied. This will be stiffened to six months and £3,000 and in exceptional cases up to 10 years will be possible.

It will be illegal under the new law for anyone to either possess or use a device which can copy a program. The music industry enlisted FAST's help in lobbying Parliament to get this provision because with the advent of digital audio recording technology they are frightened of people being able to make perfect copies of albums.

But will the Copyright, Designs and Patents Bill deter pirates? Probably not. The case against the Glasgow pirates raided by Strathclyde CID last August has been dropped by the Office of the Scottish Procurator. And you know why? Because the case was deemed too complicated!

It's a complete farce. That sort of thing ensures that pirates will continue to thrive and need have no fear of the law.

There have been successful actions brought against pirates such as the time in 1984 when Microdeal obtained a court order that enabled them to enter premises and seize tapes and duplicating equipment. The copying operation was run through adverts in magazines and had a catalogue of over 50 games and utilities. But these sort of busts are too few and far between, and the powers that be need to be more efficient to catch the crooks.

Cracked games are freely distributed through a network of informal contacts, often via mail or computer clubs. One north western club must hold the record for the most simultaneous copies made in one place; over 70 Atari STs were linked together for copying. Having said that not all clubs are hotbeds of copying and cracking, but it's hard for club organizers to make sure that people are not breaking the law.

Some hackers could become gifted programmers. The skills of the elite game crackers are extraordinary, and often they are are idolised by their less talented brethren. If directed properly they could produce wonders for software companies. There is a story doing the rounds of a lad who hacked into Ocean's *Operation Wolf*, which in ST format comes on three disks, removed a bug on level five which causes the game to crash when a particular object is shot and compressed all the code to fit on one disk. Disks aren't cheap – Ocean would have been extremely happy to have left two disks out.

Some hackers are beginning to put their programming talents to better use. A couple of development houses recently announced that they are training ex-crackers in the art of games programming, and the West German cracking group TEX say they are working on a game.

CONFERENCE TICKETS

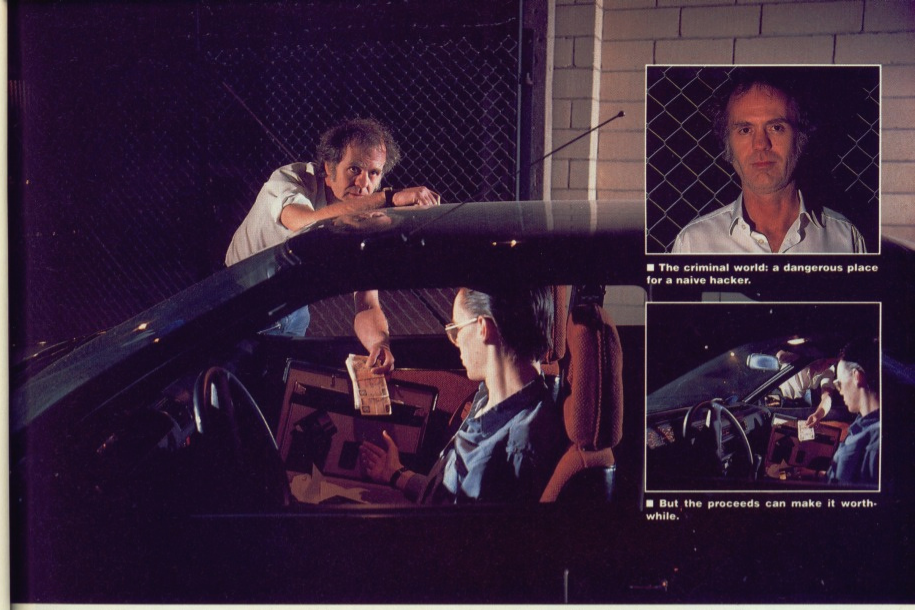
Occasionally crackers get together to discuss new methods and new ideas. Some travel thousands of miles to join cracking parties. These hackers must be making a mint from what they do or have jobs that reward them with substantial incomes.

The Chaos computer club regularly holds events like these and was filmed by a BBC crew who were compiling a programme on the computer viruses. The footage showed crackers hunched over computer screens comparing ideas during their 'virus workshop'. Hackers from Chaos have broken the protection on games, written viruses and even broken into supposedly secure American defence computers and passed on information to the KGB!

SPREADING IT ABOUT

Certain crackers don't like the fruits of their labour to be spread around the country – but when a cracker gives a game to a friend and asks it not to be given to anyone else, the friend may give it to another friend with the same plea. In this way it is very easy for a game to disperse very quickly.

The indiscretions of programmers can allow pre-production copies of games to fall into the hands of hackers before the finished version gets into the shops. Software house Linel suffered unfinished versions of their adventure *Ice and Fire* being distributed through



■ The criminal world: a dangerous place for a naive hacker.

■ But the proceeds can make it worthwhile.

■ **The lure of large amounts of cash on offer can introduce young hackers to the seedy side of the criminal underworld. In one case we are aware of (reconstructed above) the hacker even had to make a rendezvous with a messenger from one software "Mr Big" in a deserted factory lot like something out of a crass TV series. Payments for cracked games are made strictly in cash.**

the networks many months before it was finished. This kind of exposure of a half-finished version of a game can be disastrous.

Another game being hawked around the networks months ago was Infogrammes' spectacular *Operation Neptune*. Many programmers believe that the damage is not done by the crackers themselves, but by the extensive networks that spread the cracked games throughout the UK and the rest of Europe.

SHOWING OFF

Cracking has been going on for years. At first, when the protection was removed the person responsible would leave a message in a prominent position in the game. Gradually hackers started to use pseudonyms and then to acknowledge each other with scrolling messages in the title screen. After this came the hackers who would take sections of commercial games to produce music or graphic demonstrations. The most notable of these being the TEX group who are responsible for demos such as *The BIG Demo* and *The Amiga Demo*. On the Amiga the Northstar group are responsible for a collection of demos on one disk which is well worth seeing.

THE UNTOUCHABLES

It's a sad fact that many young computer users look in awe at pirates and crackers; they see them as heroes – above the law, better than the best programmers and they make games easy for everyone to get hold of. David Crothley is a typical 12-year old (owning both an ST and an Amiga) who adores the hacking fraternity.

How many games do you buy a month?

None! My Dad sometimes buys me some – but very rarely. He's tight. Mostly I get games from my mate Mic. Mic's fantastic – he knows a hacker. And this hacker gets all the latest games which he passes on to us. Some of the games aren't even available in the shops. Mic reckons the guy knows people at software houses.

Why do you worship hackers when you know perfectly well what they do is wrong?

Well they are great, aren't they. I mean, look what they can do to games. Put messages in the title screen, add infinite lives and remove protection so everyone can have copies of games. They aren't doing anything wrong... everyone tapes from the radio and TV and that's supposed to be wrong. If everyone does it then it can't be wrong. Even me Dad tapes stuff from Radio 3 and he goes to church every Sunday. He's the one that does the worshipping.

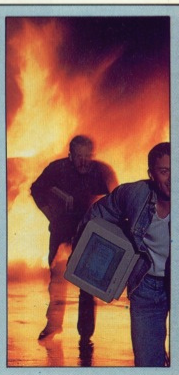
But don't you realise software houses and programmers are losing money because of hackers' activities?

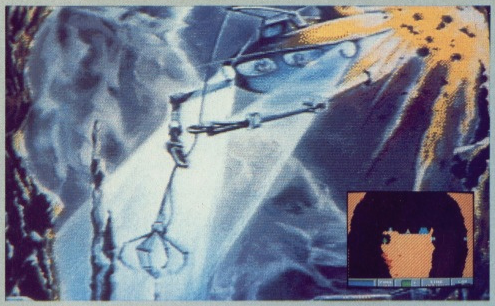
Naff off! Software houses have got loads of money, everyone knows that. Anyhow, most of the games that I get are such rubbish I wouldn't buy them even if I had as much money as the software companies. They're really boring.

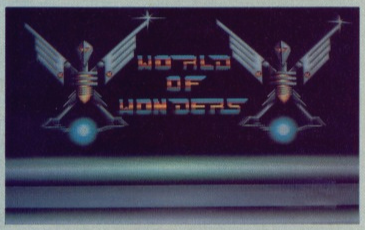
So why do you continue to accept cracked games if you think they are rubbish?

Have you seen the scrolling messages and digitised music most hackers put in title screens? They are brilliant. Better than the games even. And what they say in them is excellent too.

Some of the stuff that they put in them is dead funny. They use words which would make Dad go mental if he saw them. Mind you, he probably wouldn't know what they meant even if he did.







■ **Up until a few months ago a game that had been cracked would either have just been stuck on a straight formatted disk or on a disk with some kind of menu. This was very costly in terms of disks, so cracking groups have started compacting the games so that they take up less room on disk. One particular group – see top left – manages to get five or six ST games on one double-sided disk. This same group had, at the latest count, brought out in excess of 100 of these disks.**

Hackers are becoming more and more confident; they openly slag off other cracking crews and put their names and addresses into scrolling messages (middle left).

Other hackers put wonderful animation sequences and sampled sounds at the beginning of games (bottom left) that often look better than the games themselves.

Software is distributed around the piracy circuits long before it reaches the shops. An *Oids* clone (above) and *Worldwide Hunting* from US Action (right) and are two such examples.

In order to crack programs most hackers must have a reasonable knowledge of assembly language, though with the aid of a certain 'utility' even readers of *New Computer Express* could crack most games! This utility is a DIY (Destroy It Yourself) tool for people who want to remove the protection from games or applications. There are certain types of protection that this utility can't handle, but since it is normal for a company to use someone who specialises in protection to treat their games, trends do develop.

One such software protection artist is Rob Northern who handles the cover disk for *ST Amiga Format* – the DIY utility mentions his protection as one type that can be cracked.

WHAT CAN BE DONE?

The software industry is in no doubt about the harm piracy does, but what can be done to counter it? Better software protection will help to deter casual hackers, but will only encourage the elite who live day and night with their disassembler. Public awareness of the damage piracy does could help, but there is as little sympathy for software houses as there is for record companies bleating about home taping. People simply do not regard copying games as being immoral, and see it as being only technically illegal. The provisions of the new Copyright Bill are ridiculously impractical – will the ban on copying equipment include a twin disc drive for instance? The managing director of a leading software company probably had it right when he said recently that the only cure for hacking is a twelve-bore shotgun.

Commercial forgery is a different matter, and must be tackled head on with stiff prison sentences. Teenagers getting an ego boost by proving themselves the master of a three-inch disk of brown plastic should not be confused with shady dealers in stolen software. ■

MAFIASOFT: THE ITALIAN CONNECTION

Hacking has become an international industry with tendrils reaching all over Europe and the Americas.

One of the blackspots is Italy. Piracy is particularly prolific there because so few British and American companies bother to sell their software outside their traditional markets.

An idea of the widespread and semi-legitimate nature of Italian piracy was given by businessman Maverik Greissing at a recent trade show in London. Greissing displayed nationally-available disk magazines containing cracked copies of software from other countries. When questioned, the owners of such magazines retorted that individual people had sent in the programs claiming that they had written them.

Italian pirates duplicate the packaging and software and pass the forgeries on to distributors. Surprisingly, the software houses are often unwilling to take action – Greissing quoted the example of *Emlyn Hughes International Soccer*.

It seems that despite being shown the forgery and told where it had come from, the copyright holder Audiogenic's only reaction was to say that the Mediterranean dealers wouldn't sell the copy because the packaging wasn't as good as the genuine article. The pirates clearly don't have the same opinion.

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HANDY MAN

Using your character's hands and face is the key to realistic animation. MARK PICKAVANCE goes through the emotions.

For serious character animation the objects you animate must portray emotion – the best way to do that is through gesture. You need to manufacture fear, rage, surprise, worry and so on. The overall design of the character has a bearing on what sort of emotions are possible and likely. The walk cycle can show mood, age and agility – but for the more subtle emotions we must look to the hands and head. Without expression the character is a robot, devoid of emotion and true life. If you can get emotion into your animation then you are getting to the essential objective of character animation; the illusion of life.

THUMBS UP

There are no two ways about it; hands are a problem, they are either too small, too large, in the wrong place or just completely the wrong shape. The trick is to draw them as generally as possible and then add detail when the rest of the animation is working well. Early concentration on the hands can distract you from the purpose of your endeavour.

So that you can have some designs to copy, there is a screen composed entirely of hands. They have been drawn in the style of Mickey Mouse, white gloves with three seams on the back of the hand. The technique of drawing them is the same as for the entire mouse. The palm is drawn as a circle or an ellipse. The three fingers project from this on one side and the thumb at right angles to the fingers. Try copying these hands till you get the hang of it. Hands are an acquired art and not easily mastered.

The use of gestured and animated hands can enhance a scene by making the character more 'readable'. The eye is often drawn to the hands as a source of expression and re-enforcement. Even if they don't move they can portray the feelings of the character by their position. Hands on hips shows confidence and brashness, while folded arms shows impatience. Placing the hands on the head can mean sorrow, madness or doubt. If you are not sure where the arms and hands should go, act out the scene yourself and see where you place your arms and hands.

HEAD TURNER

Remember everything that moves in life, travels in arcs. If you don't want to animate a robot, which by its very mechanical nature travels in straight lines, you must make all the movement describe l arcs. The example about to appear will demonstrate this; it will also explains why computer 'in-betweening' does not do what real in-betweening does.

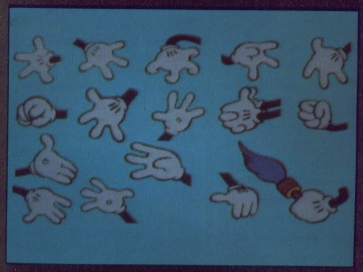
Consider the five drawings in the diagram on the rightmarked 'Wrong'. Drawings 1 and 9 are the 'key' positions in turning the head. All nine frames that make up this movement haven't been included, but you can easily create the missing frames. The obvious course of action in in-betweening is at the top; the head simply rotates as if on a spindle.

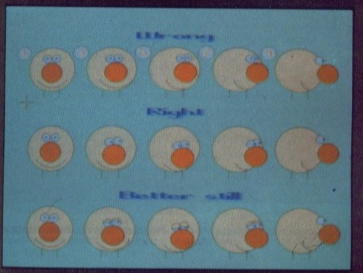
This would be fine if peoples heads were connected to their bodies by a similar mechanism. However, the neck is a very complicated structure, enabling all sorts of fine movement in many different planes. Turn your own head and see what happens; you should be aware of a slight dip in the middle of the rotation. This is the arced motion which we must re-create in our animation.

In the 'Right' drawings the correct sequence is displayed – for you to create the full animation you will have to in-between frames 2, 4, 6, and 8. This will produce a good animation over nine frames, which is a reasonable timing for a head turn.

The scale of the 'dip' is very much dependent on how cartoon-like you wish your animation to be. The more you exaggerate, the less lifelike and more expressive it will become. Copy the example and include the missing frames.

One additional feature in the correct version is that the eyes move to look in the direction the head is turning, but ahead (no pun intended) of the rotation. The general reason for turning the head is to enable us to look in that direction so the eyes should not just look blankly forwards as in the 'Wrong' example.





WHITE GLOVES?

The 'hands' graphic shows what are clearly Mickey Mouse's hands, this is obvious because of the white gloves. But why should a mouse be wearing white gloves? Unfortunately that's tricky to answer. Nobody seems to have any sensible answers to this question. In early Mickey cartoons they were not present, but sometime in 1929 they magically appeared. From a pure design point of view they are very helpful as they make a clear distinction between the hand and the arm. This may have been the reason that they remained a feature after the initial reason for their inclusion was long forgotten.

Ironically most animation studios carry a large stock of white gloves. They are used by the paint and trace department to stop fingerprints and other mess damaging the cells while they are being opaqued. If you look at the back of some old gloves you will undoubtedly find that one person has marked the back of his pair with three black lines.

EYE STRAIN

Having moved the head, it is only correct that you should now include the eyes. Turn your head from side to side and look again at what happens when you do so. You may notice that the tendency is for the eyes to either blink fully or half close. The eyes should close on frame 5. This is yet another subtlety which enhances the overall effect. This is shown in the third version of the head turn, entitled 'better still'.

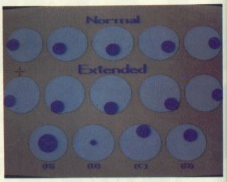
Eye movement is very similar to head motion – it must be performed in arcs. If the pupil travels across the eye it should not do so in straight line. In the graphic of eyes you can see what should be done to produce the effect of the eyes following an object from left to right. The 'Normal' version shows this.

Note the pupil does not touch the side of the eyeball. If it does it becomes more effective if the eyeball distorts slightly, as if the pupil had some weight, this is the 'extended' example below. There is no logic to this, it just looks good.

At the bottom of this graphic you'll see four eyes marked 'A' to 'D'. Each demonstrates a different 'look'. Eyeball 'A' shows a large pupil which indicates attention, receptivity or wonder. This is the opposite to 'B' which portrays a dazed, stunned look. This sort of eye would be associated with weak, perhaps hypnotized characters. If the pupil touches the eyeball as in 'C', this shows a forceful attitude, or determination. If it floats around never touching the edge this gives a somewhat vague appearance, as in 'D'.

BLINKING GOOD FUN

You might think that blinking is quite straightforward. It is in fact one of the more difficult things to master. If you are drawing a blinking eye, use the arc drawing function of the art package you are using. If it hasn't got an arc facility you will have to do this by hand (using 'zoom').



The eyelid should never be drawn as a straight line, always as an arc. There are three main types of blink, fast, slow and squint. A fast blink is used to show that the character is awake and alert. The faster the blink the more awake the character is. Slow blinks are associated with sleepy characters.

The drawn example only shows frames 1, 3, 5, 7 and 1 again. You can draw the in-betweens, and try removing frames as well. We all blink at least once every 10 seconds, for cartoon characters to appear normal they should also make regular, fast blinks.

CHARACTER SHEETS

In any big production several people will animate each character. This means that all the animators must reach a common style, and be able to control their own creative forces to serve that style. To help them do this a 'model sheet' or sheets are sketched by the designing animator. These show a single character from numerous angles, involved in a wide variety of activities. The other animators will use it as a reference so that they can maintain the scale, shape and details of the character as if he was being animated be the originator. If you are serious about animating then you should make some model sheets on your computer. You have one distinct advantage over a conventional animator – he can't cut and paste portions of his model sheet into his current drawing.

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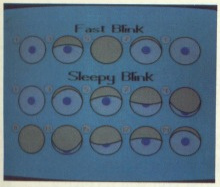

The second type or 'sleepy' blink indicates a drowsy, stupid or drunk person. The slower the motion the more drowsy, stupid or drunk the character is. The example is over 19 frames, if you want the character to seem very sleepy you could make it more. The primary difference between this and the fast blink, apart from the speed, is that the eyelid drags the pupil up and down the eye. This indicates a lack of control on the owner's part.

There are plenty of drawing styles for you to try this month; no squint however. That's for you to do on your own. It's quite simple... the thing to note is that both top and bottom eyelids appear and meet in the centre of the eye. You should animate it over, say, nine frames, and if you want something more taxing, try taking the 'head turn' animation and add a squint or blink at the end of it. Good luck!

NEXT MONTH

The going gets tough. The subject of next month's tutorial is making your characters talk. Yes, mouth movement. Something most of us are very goot at.

'Lip sync' is one of the most difficult animation tasks to attempt. Look out for it in the next issue; it's going to be hard so keep awake. If you can manage to do this you can do anything – well almost.

ROTOSCOPE

If you find animating a character too difficult, you could try a different approach.

The 'Rotoscope' technique is one frowned on by conventional animators. The Rotoscope machine is usually a converted camera through which film can be projected onto paper. The process involves filming people performing the action you wish to animate. Then projecting the images onto paper and sketching around the projected picture. This can either be used as the animation, or just as a guide. The snag is that all the images you create are too accurate, and move too realistically. Any animator can immediately spot 'Rotoscoped' work because of its very nature and style.

When Disney animators had problems animating Snow White they turned to Rotoscope as a solution to the film's heavy workload. Snow White was in production for five years; in that time over five million sketches were made, using around 500 miles of paper. In the end they only used some Rotoscoping to start animating the Snow White character – after a little practice they discovered that they could animate her without Rotoscope. They never used this technique again. The feature film The Lord of The Rings used the process extensively, in fact for all the characters. The end result was attractive, but lacked the pure style of 'real' animation. A successful case of its use is the original A-Ha video, for their single 'Take on me'. This used live action combined with Rotoscope. The video was a crucial factor in the ultimate success of the single and group.

MIRROR MIRROR

As with all character animation, the best technique for finding out exactly what happens when a character does something is to do it yourself and observe. If you enter a commercial animation studio you will discover that most animators have on, or near, their desks a mirror. Some studios have an entire wall of mirrors, like a ballet studio. You will also discover that animators spend many hours a day making the most bizarre expressions and poses, while observing themselves in the mirror. This has lead many people to question their sanity.

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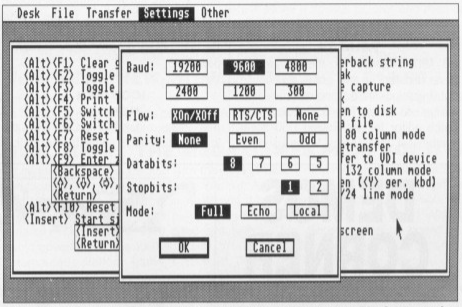
VISA

PD UPDATE

Whether you're a hardened programmer or a joystick junkie, the PD libraries have something for you, finds JASON HOLBORN.

ST

All the programs featured in this month's ST PD Update were taken from the FloppyShop range of PD disks although most can also be found in other collections.



■ **The configuration menus within *UniTerm* are easily accessed by just pressing the 'HELP' key.**

UNITERM
DISK COM.05

Computer communications is one of those aspects of computing that you either loath or just can't get enough of. The *Format* team is exactly the same – half of the team are real comms buffs while the others scream at the tops of their voices every time words like 'baud' and 'parity' are heard. Comms is unfortunately surrounded by a wealth of seemingly meaningless jargon which can make the task of choosing the right modem and software a very confusing business.

Supposing you've already chosen your modem (if you haven't, check out our in-depth modem feature in issue 9 of *Format*), what software package are you going to use? It will come as no surprise to you to learn that *UniTerm* is a communications package which could bejust what you've been looking for.

The program offers extensive emulations of several of the most popular terminal types such as VT102, VT100, etc as well as allowing emulation of the vector mode of the Tektronic graphics terminal. As well as standard terminal emulation, *UniTerm* also includes extensive file transfer facilities. Protocols supported include XModem, YModem and Kermit.

If you're just starting out in computer communications and you cannot afford any of the commercial offerings then *UniTerm* is well worth investigating.

SUPER NEO SHOW
DISK DEM.31C

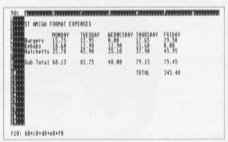
Producing endless graphical wonders in your favourite paint package is all very well, but what happens when you want to unleash your masterworks on the art world? You need a slideshow program. Calling *SuperNeoShow* a slideshow wouldn't be doing it justice - it is considerably more interesting than your average run-of-the-mill slideshow. For starters, the program will automatically load and display any low-resolution *Neochrome* format pictures that are in the same directory as the program itself. So what? I hear you say. Displaying pictures is only half the story with *Super Neo Show* as it also allows you to add a commentary to your artwork in the form of a multi-colour scrolling message that scrolls smoothly along the bottom of the screen. For that extra impact, *Super Neo Show* will simultaneously perform a whole range of wonderfully colourful effects in the border.

MINOS
DISK UTL.06

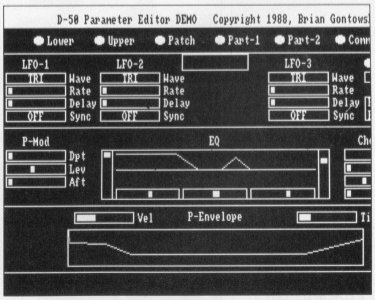
One of the most useful features offered by the ST's GEM desktop is its desktop accessories. Desktop accessories come in many shapes and sizes – ranging from the simplest ofdesktop clocks to complete paint packages. Luckily, Desktop accessories exist in abundance within the PD libraries. *Minos* is a nice little game hiding under the guise of a desktop accessory. The object of the game is to guide Theseus (slayer of minotaurs) around a huge 3D maze and to help him escape to freedom.

SPREAD
DISK UTL.18

Do you need a spreadsheet but can't afford the high price? Well, look no further than the PD libraries and you can pick up some very acceptable spreadsheets for the price of a disk. One of the easiest to use is the imaginatively named *Spread*. *Spread* is a very simple spreadsheet that works and feels similar to the spreadsheets such as *Lotus1-2-3*



■ ***Spread* in action.**


D-50 Parameter Editor DEMO Copyright 1988, Brian Gontows
Lower Upper Patch Part-1 Part-2
LFO-1 LFO-2 LFO-3
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■ **Designing sounds on your D50 has never been so simple (see overleaf).**

AMIGA SUPPLIERS

The following companies distribute Amiga PD software in this country. To find their full addresses, give them a ring or scan the advertisement pages.

George Thomson - 077082 234

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and *VIP Professional*. Obviously the program lacks their sophistication but it will still easily handle most simple spreadsheet applications

AMIGA

The programs featured in this month's Amiga PD Update were taken from either the Fish or FAUG range of PD disks.

D50 EDITOR
FAUG 79

PD MIDI software for the Amiga has never existed in any great abundance but if you look hard some very powerful utilities do exist. The *D50 Editor* is a patch editor for the Roland D50 linear synthesiser that seems to be used by nearly every group these days. The program is unfortunately only a demo but apart from the absence of a save function, it is fully operational. Although the package does not include any method of saving your creations, it will still allow you to create sounds quickly and easily. Although you cannot save your patch to an Amiga disk, you can of course still store it in the D50's onboard memory.

The full program will allow you to build up a library of all your favourite D50 patches and have them stored on Amiga disks but this demo will provide you with an ideal taster of this power package before you decide to fork out the neccessary readies for the complete program.

ICONISER
FISH 154

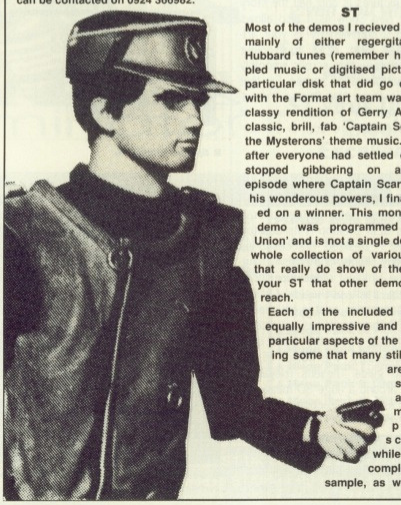
If you take a look through any PD catalogue, you'll soon come to the conclusion that PD programmers seem to g through regular fads. During these fad programmers seem to pick up on a idea and then try to use it for as man different applications as they can drea up. The current fad with PD program mers seems to be based around th basis of 'iconifying' anything that the can get their code on. We've seen tas iconifiers, where a task is frozen an reduced to a little icon at the bottom the screen, and also window iconifier which work on the same principle an are very useful for keeping th Workbench clutter-free. *Iconiser* w allow you to instantly assign the mous pointer to any shape, size or colour b just double clicking on an iconified repr sentation of the mouse pointer yo require. As anyone who has playe around with the mouse pointer editor Preferences will tell you, this can b quite fun.

DEMOS CORNER

After last month's preview of things to come, Demos Corner steps up into full gear with demos for both the ST and the Amiga.

It was a hard task picking the best from among the multitude of demos I receive - but, after several long sessions of umming and ahhing, I eventually came to a decision. Both demos featured in this month's Demos Corner were supplied by 17 Bit Software who can be contacted on 0924 366982.

■ Sing along to the Lima! song with Pan Demo 2



ST

Most of the demos I recieved consisted mainly of either regergitated Rob Hubbard tunes (remember him!), sampled music or digitised pictures. One particular disk that did go down well with the Format art team was a rather classy rendition of Gerry Anderson's classic, brill, fab 'Captain Scarlet and the Mysterons' theme music. However, after everyone had settled down and stopped gibbering on about the episode where Captain Scarlet gained his wonderous powers, I finally decided on a winner. This month's mega demo was programmed by 'The Union' and is not a single demo, but a whole collection of various demos that really do show of the parts of your ST that other demos cannot reach.

Each of the included demos is equally impressive and show off particular aspects of the ST including some that many still maintain are not possible such as fast, multi-plane parallax scrolling while playing a complex sound sample, as well as full overscan and sprites in the border etc. The Union Demo is available on disk number 170.

AMIGA

Amiga demos continued to flood in at a rate of knots this month, and among the usual collection of mega-copper-blitter-nutter demos, some very impressive ones turned up.

Unfortunately, picking a single demo proved to be too much even for me so I opted to pick not a best demo of the month,.but a best demo disk of the month. Most demos are usually packed onto a disk containing several other demos and I therefore picked the disk that offered the most innovative and impressive collection. The disk I finally picked featured six different demos, all from different authors. Probably the most visually impressive demo was the 'Kefrens Psychoball' demo which employs sampled effects, large multi-colour blitter objects and very smooth scrolling. The award for the weirdest demo went to the 'Pan Demo 2' which demos some of the best music yet heard on an Amiga - run this and you'll be humming the 'Lima lima lima' song for weeks to come! This particular demo disk is available as disk number 319.

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"The Commodore Show Selection"

In early June we demonstrated for the first time a selection of our new Software Products for the Amiga. One of the main attractions at our stand was, as always. JUMPDISK. In the June issue we featured another JUMPDISK 'First' - "PeopleTree" a Geneology program that puts your family on record. In the Public Domain department "Star Trek" proved to be a sell-out and the success of the "Mega Games Pack" and the "Home Business Pack" showed just how many Amiga owners appreciate the quality of Amiga PD.

★ JUMPDISK ★GENEALOGY ★ JUMPDISK ★ GENEALOGY ★ JUMPDISK ★

"JUMPING PEOPLETREE" in this special show issue of JUMPDISK are - PointerEd: Make a special pointer and then use it in a program. ESP: Do you possess it? Enjoy the experiment virus 3.2: Now it identifies all 16 known Viruses Coderoom. Only you have the key to encode and decode your text files. BigPix: Scroll Multiple Arts Screens endlessly plus more! In the Articles section we feature the latest Amiga news from the USA, Tutorials, Reviews of DPaint III and Microfiche Filer, the latest PD releases and much much more. All for only **£8.50 inc.**

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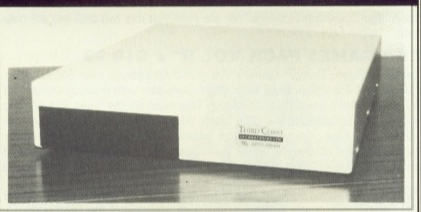

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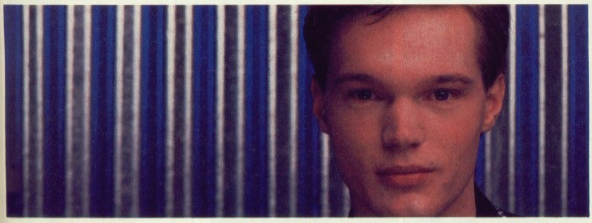
JASON HOLBORN describes the contents of this month's final fantastic dual-format floppy disk.



ON THIS MONTH'S DISK

ST | AMIGA

SPHERICAL.....42
Try your hand at the first four levels of Rainbow Art's latest arcade blockbuster. Guide your master wizard through some of the meanest screens of arcade action and dodge some decidedly nasty monsters that are out to ruin your day!

TCOS.....43
Databases need not be boring and *TCOS* is most definitely proof of that. Create and maintain databases on any subject with the kind of ease of £100 packages. *TCOS* allows you to manage not only text, but graphics as well.

FIXDISK.....44
Fixdisk is for all of you who have ever lost valuable disks at the hands (heads?) of some malicious disk drive. Stop shouting obscenities at your disk drive and start singing the praises of this life-saving utility.

EXPLODE.....42
Rescue your brain before it gives up on you and runs off to join the circus. *Explode* is a game with a very rare extra ingredient – originality.

WICKED.....43
Supernatural goings on are the order of the day with Activision's deceptively original game. Will good triumph over evil or will the darker side of the tarot win the battle for the cosmos?

MANDELSHOW.....44
Maths was never this much fun when at school. Explore the colourful, fascinating, chaotic and infinitely complex world of fractal graphics with your trusty Amiga as your companion.

VCOMMANDS.....42
Give your AmigaDOS batch files the kind of string handling power that you have dreamt about. With *VCommands*, your batch files will be faster, more powerful and more efficient.

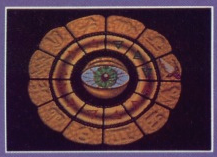
WB UTILS.....43
Add a number base converter and a very handy calendar to your arsenal of Workbench utilities. Never again will you be late for a date or baffled by binary.

BEFORE YOU START

The first thing to do when you get your *ST Amiga Format* cover disk is to make a back up copy of it. Full instructions for this are given on page 46.

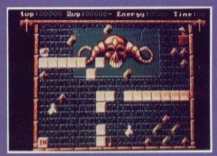
Before you use any of the programs read the instructions on the following pages. If you have any problems check the documention on the disk itself. If it still won't work see page 46 for details of how to get a replacement.

WICKED



The constellations are under threat from an evil scourge. Only you and the Sun can save them.

SPHERICAL



Wizards, witches, spells and monsters. All the ingredients of a great game from Rainbow Arts.

EXPLODE

Brain in gear? Then you might just be ready to tackle *Explode*. The rules are simple, winning isn't.

MANDELSHOW

The Amiga's computing power is the only limit on the facinating spirals of the Mandelbrot set.

EARN £800
SEE PAGE 44
All you have to do to become wealthy is write a red hot program and have it featured on our Coverdisk.

ST

SPHERICAL

PROGRAM: BY RAINBOW ARTS, BARRINGTON HARVEY
MACHINE: COLOUR STS
FILES: STARTUP.PRG & OTHERS

Spherical is the latest programming masterpiece from the West German software house, Rainbow Arts. The game will take you on a magical journey into a land of wizards, monsters and magic.

You play the part of a superwizard with various weird and wonderful powers to aid you in your quest. Your aim is to guide your magical sphere through more than five increasingly difficult levels, overcoming all nasties that you may meet up with along the way. Life is made a little easier for you if you manage to collect the bonus objects which increase your power to cast spells.

In *Spherical*, you must learn to use the powers that you acquire during your battle through the different levels. Learn to harness the explosive power of fireballs and create boulders to help you find the teleports that will transport you on to the next adventure.

GETTING GOING

To start the game double-click on the STARTUP.PRG icon from the Desktop.

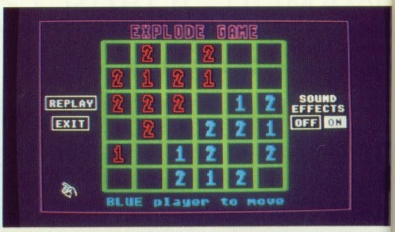
SOME HINTS

When the game starts you have 20 seconds grace before the sphere starts to roll. In this time you need to create a path for the spere to the portal, block in the sphere so it can't move, and collected an hour glass. You can make the sphere roll before the 20 seconds is up by typing 'T'.

If you collect a helping hand (a red bottle) then the asterisk (*) will kill all the enemies on the screen.

You can pause the game at any time by pressing the spacebar. To begin the level again press the ESC key.

■ **Never mind the huge monster, how do you get to the next level?**



■ **Place one more piece on the square and it will become unstable and explode.**

ST

EXPLODE

PROGRAM: BY P. D. HIBBS
MACHINE: ALL STS
FILES: EXPLODE.PRG, EXPLODE.DOC

All this mindless arcade violence cannot be good for the old grey matter! Every now and then, you need a trip down to the local brain exercise centre for some quick mental press-ups. What game can possibly reach the parts that other games cannot? Step aside *Xenon*, step aside *Dungeon Master*, for *Explode* is here.

The object of the game is to fill the entire board with all your own pieces.

You do this by by placing your own pieces on the board. Each square, depending upon its location on the board, can only handle a set number of pieces before it becomes unstable and explodes, sending fragments into all adjacent squares and capturing your opponent's pieces; time it right and you can set off a chain reaction!

HINTS AND TIPS

Explode may look like a very simple board game on the surface, but the more you play, the sooner will come to appreciate its heavily strategy based gameplay. The first thing you must do is to try and capture as many of the corner pieces as is possible and then work in to the centre, gradually capturing your opponent's pieces.

GETTING GOING

You can load *Explode* by double clicking on the EXPLODE.PRG icon on the Desktop. *Explode* is designed to be run on a low resolution, colour ST but it is also perfectly playable on both medium and high resolution STs. Full instructions, including a run down of the rules, are available within the EXPLODE folder.

AMIGA

VCOMMANDS

PROGRAM: BY TOGESH RAJA
MACHINE: ALL AMIGAS
FILES: VCLEAR, VCLS, VCOMPARE, VLET, VQUICKCMP, VPRINT, VCOMMANDS.DOC

Talk to anyone who has used a system based on the professional operating system Unix and they'll soon starting ranting on about how primitive the Amiga's com

■ ***VCommands* provides you with all the tools you need to produce interactive batch files.**

mand line interface is. Using Unix complete applications can be written in no time at all using what are called Shell scripts.These are programs written completely using DOS commands (a bit like AmigaDOS batch files).

The thing that separates Shell scripts from Amiga batch files is their extensive string handling and decision making facilities. With *VCommands*, you can add string handling to your batch files.

VCommands is a collection of six AmigaDOS commands designed to allow complex string manipulation within your batch files. All the commands are designed to work on 27 common storage areas (variables if you like) that can contain any strings.

They have many uses. You could, for example, use *VCommands* to protect your disks by making the user enter a password before the rest of a disk's StartUp-Sequence is executed.

GETTING GOING

VCommands is designed for use from the Amiga's command line interface (CLI) The first thing you should do is to copy them to the C: directory of your work disk. Full instructions on how to use *VCommands* are in the VCOMMANDS drawer.

AMIGA

WB UTILS

PROGRAM: BY DAMION KLEY
MACHINE: ALL AMIGAS
FILES: CALENDAR, CONVERTER, WB_UTILS.DOC

The *Calendar* and *Converter* programs, collectively known hereafter as WB Utils, are two little programs that deserve a place on every self-respecting Workbench disk.

We won't insult your intelligence by telling you what *Calendar* is - suffice to say it isn't an accountancy tutorial. The program reads the current date from the Amiga's built-in system clock

■ **Multi-tasking at its best; here, both *Converter* and *Calendar* are running simultaneously**

and then displays the days of that month in a little window on the Workbench screen. To change the date displayed, you'll have to load the Preferences tool which can be found on your Workbench disk and change it from there.

Converter is a tool designed for the programmers among you. Unless you've got a number base converter chip implanted into your brain (all good programers come with one installed as standard), converting numbers between binary, decimal and hexadecimal can be a strain on even the keenest of brains. This then is where *Converter* can help – just select the base that the original number is in, enter it using the mouse and then select the base you wish it converted to.

GETTING GOING

You can load both *Converter* and *Calendar* by double clicking on their appropriate icons. Full instructions for using these little gems are in the file WB_UTILS.DOC.

ST

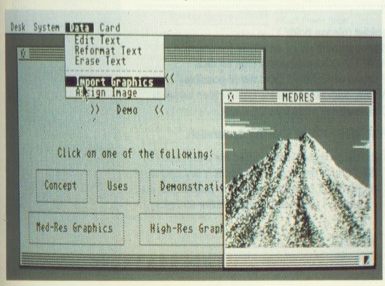
TCOS

PROGRAM: BY M. P. AUBURY
MACHINE: ALL STS
FILES: TCOS.PRG, TCOS.DOC

TCOS is a database program that sets out to save the name of databases in the face of overwhelming hostility. The traditional image conjured up by the word 'database' is of an incredibly dull green screen filled with even duller text. But wait, you've got an ST which has one of the friendliest windowing environments on any machine and it has high resolution graphics, so why not use these in a database?

TCOS uses both of these facilities to full effect. With *TCOS*, you can import graphics with ease

■ **The demonstration database lets you keep track of the computer world.**



■ ***TCOS* will also allow you to import graphics .**

AMIGA

■ **Starting out on your mission against the dark forces.**

WICKED

PROGRAM: BY ACTIVISION
MACHINE: ALL AMIGAS
FILES: WICKED, WICKED.OBJ

This month's Amiga demo is of the soon to be released game by Activision, *Wicked*. It's a battle of good and evil that mixes arcade action with tactical planning. You play the good guy who's out to save the universe from a fate worse than death.

Evil is spreading through the 12 zodiacal constellations and must be stopped, each constellation has three stars infected with evil and you have got to stop it. The cover disk demo contains one of the 36 stars that are having problems.

Full instructions on how to play are included in the game in the form of a tutorial style guide to the game.

If you want to skip the instructions then just press fire on the joystick and you can go straight in there and start playing, but it's advisable to read the instructions the first time you play.

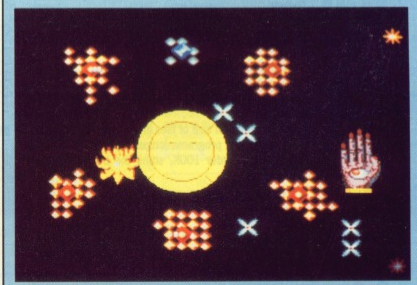
The only thing that you need to know concerns the symbol in the centre of the playing screen. During each day and night (indicated by the sun or moon picture) the symbol splits in two and a tarot card appears. Simultaneously a globe is thrown out and if you collect the globe something happens to you, either good, bad or debateable. You can tell what will happen by the tarot card, but you'll have

■ **Big trouble from the evil growth in this Taurean star. Your poor orange portals are surrounded by deadly blue virus pouring fron your opponents generators.**

more fun working out what each of the cards does if you find out the hard way.

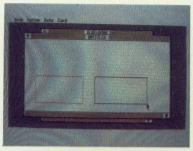
SAVING YOUR SOUL

Wicked can be loaded by putting the cover disk in the drive when asked for the Workbench disk.



■ **The blue evil portal sends its spores spinning around the stars.**

and the whole program is also completely GEM based. But that isn't all, *TCOS* could also quite easily claim to be the easiest database in existence; even Gary



■ **The easiest database ever invented?**

can operate it (which is really quite an achievement!).

The process of setting up and maintaining your database is simplicity itself and is probably faster than any database you've ever used before.

TCOS can be used not only as a database but you could even try to set up an expert system using its excellent windowing system as well. This database doesn't really need instructions on how to use it but, in the name of tradition and to keep you happy, we've included complete instructions in the form of a 14K text file!

GETTING GOING

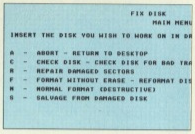
You can load *TCOS* by double clicking on the TCOS.PRG icon on the Desktop. Full instructions are included in the TCOS folder.

ST

FIXDISK

PROGRAM: BY TREVOR SCOTT
MACHINE: ALL STS
FILES: FIXDISK.PRG, FIXDISK.DOC

Confucious states that if you possess 100 disks and – out of that 100 disks – only one is of value to you, that particular one will be the


FIX DISK
MAIN MENU
INSERT THE DISK YOU WISH TO WORK ON IN DR
A - ABORT - RETURN TO DESKTOP
C - CHECK DISK - CHECK DISK FOR BAD TRA
R - REPAIR DAMAGED SECTORS
F - FORMAT WITHOUT ERASE - REFORMAT DIS
M - NORMAL FORMAT (DESTRUCTIVE)
S - SALVAGE FROM DAMAGED DISK

■ ***Fixdisk* rescuing a valuable data disk from the clutches of TOS.**

first to be corrupted. If you've ever lost all you valuable disk data, then *Fixdisk* will be the answer to your prayers.

Fixdisk not only tries to save your valuable files, but will also attempt to repair soft errors it finds on your disk. No guarantees though.

GETTING GOING

You can load *Fixdisk* by double clicking on the FIXDISK.PRG icon on the desktop. Full instructions on all *Fixdisk*'s key controls are available within the FIXDISK folder.

AMIGA

MANDELSHOW

PROGRAM: BY NIC SHULRER
MACHINE: ALL AMIGAS
FILES: MANDELSHOW, MANDELSHOW.DOC, START-POSITION.PIC

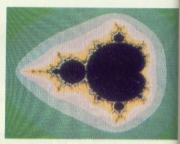
Fractal graphic generators come in many different forms, ranging from the classic Mandelbrot set through to the fascinating 3D landscape generators which seem to pop up in everything from Star Trek movies to computer games. It doesn't take a brain the size of two planets to work out that *MANDELSHOW* is based around the Mandelbrot set as formulated by Benoit Mandelbrot.

For those of you who have never encountered the Mandelbrot set before, it is a graphical representation of a complex mathematical expression. The fascinating thing about Mandelbrots is that the more you zoom in, the more complex the resulting image becomes. Although the area is finite - lying within a circle defined by $x2 + y2 = 4$ (isn't mathematics fun!) – the edge is infinitely complex and of infinite length.

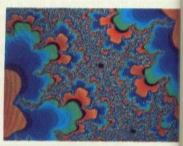
Mandelbrots require a lot of calculations and even with a powerful processor such as the 68000, they can take a very long time to produce, so go and make yourself a nice cup of coffee and be prepared to wait!

GETTING GOING

You can take a plunge into the fa
cinating world of fractal graphi
by double-clicking on the MA
DELSHOW icon on the Workben
Full instructions on how to get t
best results, are in the MA
DELSHOW drawer.



■ **This is the entire Mandelbr
set – a beautiful, comple
world to explore. As you zoo
in (below) a whole mathemat
cal universe will be unveiled.**



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UINT1 - ODG/Hypnotic circles by Thrust!, Lateron by Arcadia, Party! by ITI, Balls by M.F.C, CBC by CBC, Spacedemo by Mad Monks, Europe by ANC and others, a great collection.

UINT2 - Wingdemo by Alcatraz, Supershort by Sunriders, Second by the Flying Rabbits, Digidemo by Benforce, Muzak by Fashion, DonMartin by Sanx, End by TopSwap - brilliant.

UUTIL1 - Bootem, DBwizard, Spritemaster2, Bootem 'dirty' Iconlab, Chwizard, Snip-it, Cltext, Showiz, Longmovie, Crsave, Searcher, Menumaker, Backgr, music2, Cruncher, Showfonts, Bootconfroller, Bootune, Colourscope, Bobedit, Songprinter etc etc Pick them from the menu, docs at the press of a key!

UUTIL2 - VirusX, Weathergraph, Popcl3, Animbals, Juliaset, Diskx 2.2a, Startup, Xboot, Ckcon, Iconstall2, Memview, Grab, Virushunter, Clockdoctor etc. etc. As above, choose them from the menu and press a key to run.

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Access

HOW TO USE YOUR DISK

The ST Amiga Format *cover disk is in a special format which can be read by both the ST and Amiga. Even if you are a seasoned computer user, please read these instructions carefully or you could damage your copy of it.*

The first thing you must do is make a backup copy of the disk. Because of the special format, the normal disk-to-disk copying methods, as recommended in both the ST and Amiga manuals, won't work. Instead you will need to format a disk and copy the files individually. Don't panic, this isn't at all difficult.

ON THE S T

Instructions for a single drive machine.

1. Take a blank disk and format it in the usual way.
2. With the blank disk still in the drive, double click on the A: drive icon to open up the (blank) contents window.
3. Now drag the icon for drive B: into the open window of disk A. This will copy all the files one by one off of the master disk onto your new disk. Make sure that the master *ST Amiga Format* disk is write protected (the sliding tab should be back so the hole is open) and put it in the disk drive when asked for drive B.
4. You will now be prompted at various times to insert disk A and disk B while copying takes place. There will be a lot of swapping to do on a single drive ST!

Note that our special cover disk contains 30K more files than will fit on a standard single-sided ST disk. If you own an old 520, you'll have to be selective and copy only the files you want.

ON THE AMIGA

Instructions for a single drive A500.

1. Start your Amiga up with your normal Workbench disk.
2. Take a blank disk and initialise it in the normal way.
3. Now enter the CLI, by double clicking on the CLI icon that is in your System drawer on a standard Workbench disk. Once the CLI window pops up, stretch it to full size using the window sizing gadgets at the bottom right hand corner of the CLI window.
4. Now enter the following CLI commands to set up our working environment (remember to press <RETURN> after each):

```
MAKEDIR RAM:C
COPY C:COPY|DIR|DELETE|MAKEDIR RAM:C
COPY C:RELABEL|INSTALL RAM:C
PATH RAM:C ADD
PROTECT RAM:C RWE
PROTECT RAM:C/COPY RWE
PROTECT RAM:C/DIR RWE
PROTECT RAM:C/DELETE RWE
PROTECT RAM:C/MAKEDIR RWE
PROTECT RAM:C/RELABEL RWE
PROTECT RAM:C/INSTALL RWE
```

5. Once you have entered the commands and the drive light has gone out, take your Workbench disk and put your *ST Amiga Format* master disk in the internal drive (DF0:). To start the copying process, enter the following CLI command:

```
COPY DF0:#? RAM: <Press RETURN>
```

6. During copying, the machine will display a list of the files being copied. Once copying has finished, remove your cover disk and insert your freshly formatted blank disk into the internal drive and enter the following commands:

```
COPY RAM:#? DF0: <Press RETURN>
DELETE RAM:#? <Press RETURN>
```

7. That's now the top level of your cover disk successfully copied. The next step is rather more complicated. Firstly, remove your copy disk and insert our cover disk into the internal drive and enter the following:

```
DIR DF0: OPT D <Press RETURN>
```

The Amiga should then display a list of all the directories on your cover disk which will look something like the following:

FRED (dir)
s (dir)
devs (dir)
demo (dir)

You should now write down this list onto a piece of paper (the '(dir)' extension on each is not needed).

8. With your cover disk in the internal drive, each directory that was listed has to be copied individually from your cover disk onto your copy disk. For the sake of example, if our cover disk contained a directory called 'FRED', you would enter the following commands:

```
COPY DF0:FRED ALL RAM: <Press RETURN>
```

Now remove our cover disk and insert your destination disk and enter the following:

```
MAKEDIR DF0:FRED <Press RETURN>
COPY RAM: ALL DF0:FRED <Press RETURN>
DELETE RAM:#? ALL <Press RETURN>
```

9. Now repeat stage 8 for every directory on your cover disk master (In the CLI commands above, replace each instance of the word 'FRED' with the name of the directory to be copied). Once all directories are copied, your *ST Amiga Format* cover disk will have been successfully copied
10. The final step in backing up your cover disk is to give it the same name as our cover disk and make it directly bootable using the following commands:

```
RELABEL DF0: NAME "cover disk#12" <Press RETURN>
INSTALL DF0: <Press RETURN>
```

USING THE PROGRAMS

All the programs on the cover disk have been set up so that they are as easy to use as is possible. If you do have problems with a program, full instructions on loading and running a program are included in the disk pages and these should get you up and running. If you still have problems, read the documentation file (.DOC) that is included with every program.

ON THE ST

To display the contents of a program's documentation file, double click on its icon and a dialog box will pop up which includes an option to allow you to display the file's contents on the screen. Select 'SCREEN' and the file will be displayed.

ON THE AMIGA

To display a documentation file on the Amiga, just double click on the appropriate .DOC file to be viewed and a window will open and the file's contents will be displayed. Pressing the space bar will advance a page at a time.

COPYING THE DISK

Unless specifically stated the programs on the cover disk are not public domain and the copyright remains with the author. Selling these programs without the authors' permission is against the laws of copyright and offenders will be hit with a big stick.

HAVING TROUBLE WITH THE DISK?

We have done our best to check that the programs on this month's disk are simple to use, error free and have no known viruses. However, we cannot answer telephone queries on using the software, and we cannot accept liability for any consequences of using the programs.

If your *ST Amiga Format* disk is faulty – and out of tens of thousands duplicated some are bound to be – you should send it back by July 15 for a free replacement to:

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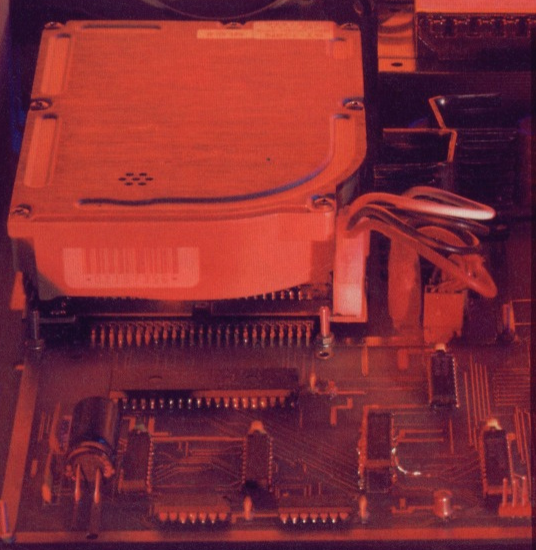
Here's your chance to get your mits on ASAP's fabulous 40Mb hard drive for your Amiga A500. Simply answer the questions below and pop a card in the post – you could be the lucky winner of a quality hard drive courtesy of ASAP and ST Amiga Format.

RULES

1. Competition entries received after Thursday July 13 will be fed to members of Amiga Format.
1. Employees of Future Publishing and ASAP may not enter the competition – sorry, Jason.
2. The editor's decision is final, so don't argue with him!

WIN AN AMIGA HARD DRIVE



Little Johnny has 14 Amiga disks – four of them are half filled with utilities, seven of them are 75% full of PD programs, while the rest of the floppies are completely packed with applications and data files. Remembering that each Amiga disk can store 880K and that Amdrive has 40Mbytes (40960K) of storage, work out how much room will be left on the hard drive once Johnny has transferred the contents of all the disks to the hard drive. Write your answer – in K – on the back of an envelope or postcard and get it to us as soon as possible.

Whether you use your machine for business, creativity or leisure, your Amiga system will benefit by having a fast, reliable and high capacity storage system sitting next to it. ASAP's Amdrive delivers 40Mb of storage capacity – which is equivalent to over 45 disks-worth of software – and can shift data 10 times faster than floppy drives. Once you've used a hard drive you'll never want to go back to floppies.

Amdrive's sleek design and colour choice means it won't look out of place beside your Amiga A500. Your system's performance will be improved so much with Amdrive that you'll wonder how you managed without it.

If you want to find out exactly what Amdrive can do for you, turn to our feature on hard drives starting on page 50. Once you're convinced, answer the three questions below and send your answers on a postcard or the back of a stuck-down envelope to AMIGA HARD DRIVE COMPETITION, ST/AMIGA FORMAT, 4 QUEEN STREET, BATH BA1 1EJ. The first entrant picked out of the hat – with all questions answered correctly, of course – wins ASAP's Amdrive. Tough luck everyone else.

All entries must reach us by Thursday July 13.

Use a hard disk at your peril – once bitten you'll never be happy with a floppy again. Format's *hard men take the risk.*

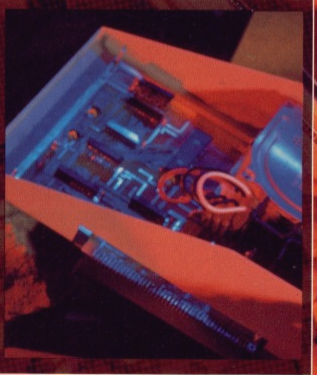
DRIVING FORCE

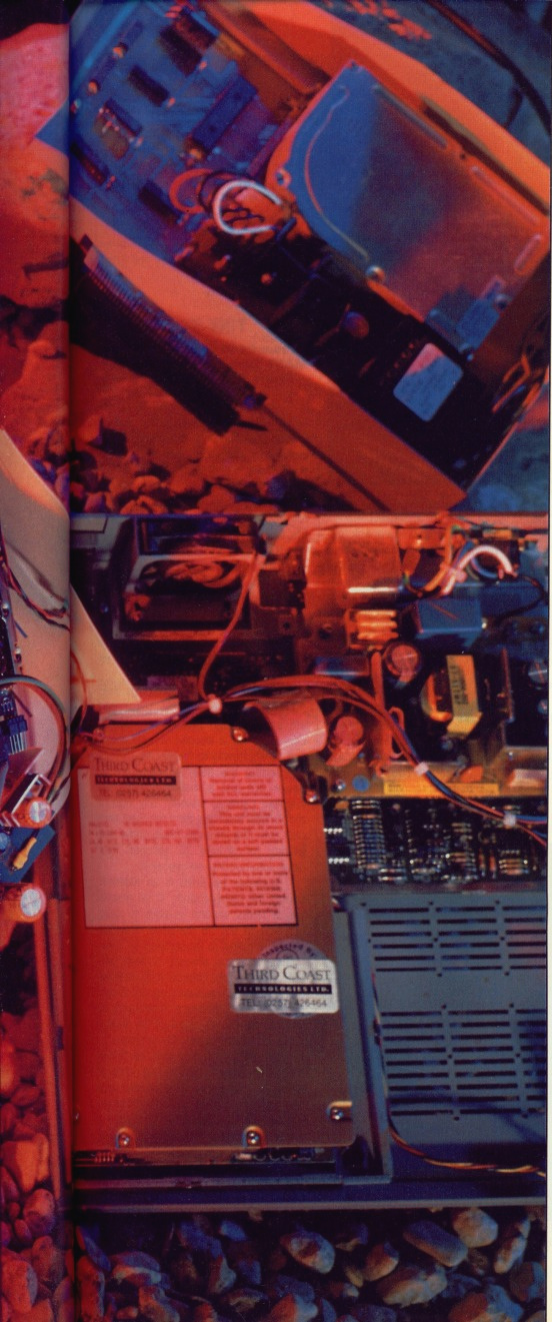
HOW IT WORKS

Hard disks operate in a similar fashion to floppy disks. The disk and heads of a hard drive unit are inside a sealed chamber. A hard disk is much faster, more reliable, and stores many more times the capacity of a floppy. The speed and precision of a hard drive results in a greater information density and shorter access times. Floppy disk drives spin from 288 to 300rpm depending on their design. A fixed hard disk drive spins at 3,600rpm.

The hard drive head is designed to float on a cushion of air several microns (a micron is one thousandth of a millimeter) above the disk, better known as a platter. The platter is accurately machined and very rigid (unlike a floppy). There are usually two or more heads in each fixed drive with one or two heads on each side of the disk. Platters come in various sizes and will have from 150 to 640 cylinders compared to 80 tracks on a formatted Atari disk.

There are two common hard disk formatting techniques: MFM and RLL. RLL (Record Length Limited) provides 50% more data storage space than conventional MFM (Modified Frequency Modulation) format. Most drives can be formatted to either MFM or RLL specification, but a different drive controller is needed in each case.





Floppy drives are fantastic at first – fast, reasonably reliable and big on storage. The more you use your system though, the more you realise how handy extra storage and even greater access speeds would be. Only a hard disk can provide you with the necessary power.

You must, however, be sure you need a hard drive. If you're a stickler for shoot-em-ups then there's little point in investing in a hard drive – most arcade action games are protected and consequently can't be copied across. That said, there are a growing number of games – mostly from the States and mostly adventures – that allow you to backup to hard disk. Things like *Goldrush*, *Leisure Suit Larry*, *Dragon's Lair*, *Roger Rabbit*, and *Zork Zero*.

For creative use a hard drive is a must. DTP actually becomes a joy. When you've got several fonts, cutouts and text files to load and save, you need something that's going to do the job quickly Animation packages, graphics utilities, sound sampling software, MIDI applications, word processors and programming tools all generate an enormous amount of data. Floppies really aren't the solution.

Our last look at hard drives for the ST and Amiga was over six months ago. In that time there's been a small scale revolution with drive prices plummetting and a string of new low-cost drives appearing Here's what to look for .

AMDRIVE

£399 ■ Amiga A500/A2000 ■ ASAP, Queensway Business Centre, Brigg Road, Scunthorpe, DN16 3RT (0724 280222) .

ASAP's Amdrive is available in two version: an external model that connects to the A500's expansion port and an internal model that fits into one of the A2000's Zorro slots. Both versions offer 40Mb of storage.

To add to the confusion, there are

UPGRADE DETAILS

Third Coast can upgrade an Atari SH204, SH205, Megafile 20, Megafile 30, Supra, Triangle or Cumana with a much faster and higher capacity drive. For example, an SH204 could be upgraded to a 45Mb formatted Miniscribe winchester. This drive not only provides 60% more capacity,.but offers 35% more performance. It also offers mechanical head auto-parking and a far better set of software utilities. This sort of upgrade costs £249. Talk to Third Coast on 0257 426464.

USING A HARD DISK WITH KICKSTART 1.3

Before the release of Kickstart and Workbench 1.3, Amiga hard drives were embarassingly slow compared to similar units on machines such as the ST and PC. With the release of 1.3, Commodore set the record straight by carrying out a major overhaul of the way the Amiga handles its hard drives.

There are essentially two new aspects of hard drive handling under 1.3; the new FastFile System (FFS) and auto-boot support.

FFS is designed to speed up all hard disk operations. Commodore claim speed increases of up to seven times. The only negative point of FFS is that it is not compatible with the older (and slower) file system; this means that to take advantage of FFS you'll have to reformat your hard drive.

To take advantage of 1.3's auto-boot facility, both your machine and your hard disk will have to support the feature. Your machine must have Kickstart 1.3 installed and the hard drive must have boot ROMs built in. Do check these things when buying a drive.

SOFTWARE SECURITY

Hard disks are not immune from corruption. To allay your worst fears of losing 20Mb of data a back-up utility is needed.

Superback **for the Amiga from the Disc Company will backup any or all of the files and directories from your hard disk onto floppy. Data may be restored selectively.**

Both the Amiga Centre Scotland (031 5574242) and HB Marketing (0895 444433) sell *Superback*. Price is a few pennies under £53.

Turbo Kit **from Microdeal (0726 68020) is the best for ST users. As well as hard disk backup, *Turbo Kit* lets you defragment your hard disk and create a data cache. It's £29.95 well spent.**

two types of A500 drive, a standard drive without auto-booting support for £399 and an auto-booting version for an extra £50. If you cannot afford the initial extra expense of the auto-booting drive, ASAP provide an upgrade service for all existing Amdrive owners. The A2000 version supports auto-booting as standard.

To take advantage of the auto-booting facility, your machine must be kitted out with Kickstart 1 3. ASAP can do the upgrade for £75.

Installation is very straight forward on an A500 – all you do is remove the plastic cover from the expansion bus on the right hand side of your machine and slot the drive firmly in place. The A2000 Amdrive draws its power from the host computer while the A500 version needs its own independent power supply.

The Amdrive comes pre-formatted under the new 1 3 Fast File System which helps to speed up drive operation considerably. The unit is both sturdy and reliable and is an ideal choice if you're in the market for an Amiga hard drive.

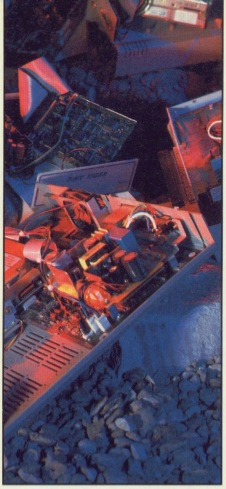
Jason Holborn

THIRD COAST

From £399 ■ Third Coast, Unit 8, Bradley Hall Trading Estate, Standish, Wigan, WN6 0XQ (0257 426464).

Third Coast's hard drive is available in several configurations: 22Mb MFM (£399), 32Mb RLL (£449), 65Mb RLL (£549) and130Mb (£699). The disk comes formatted and partitioned. Partitioning splits the hard disk into smaller, more manageable, sections, and each part is given a drive identifier: C, D, E, F, etc. A maximum of 12 partitions are allowed.

The hard drive has a DMA-in port which means the ST can make use of other DMA devices. The laser printer and CD-ROM drive, for instance.



Several public domain hard disk utilities are provided which, amongst other things, allow you to format the drive. Unless your hard disk starts throwing up errors there should be no need for reformatting. You certainly wouldn't use this program for fun: it takes 20 minutes to format a disk!

Third Coast's review drive also contained a tape streamer within the same unit. The streamer is used for backing up your entire hard disk – it's fast and very reliable. The storage medium used looks identical to an audio cassette, but it's not the same. The streamer tapes are capable of storing 155Mb of information! The stand alone unit isn't cheap (£799), although compared to similar systems for PCs it is. A tape streamer plus 65Mb hard drive in one enclosure costs £1299. Details of other configurations are available from Third Coast.

Third Coast's drives really do represent good value for money. The drives are much cheaper than other manufacturers' offerings – Atari's prices, for instance, are put to shame. Although the Third Coast units don't match the ST's colour scheme, they are designed to last and have enough room inside for two hard disks or a hard disk and a tape streamer.

Richard Monteiro

TINY TIGER

From £449 95 ■ all Amigas, MAST, Unit 1, Dippen, Brodick, Arran, Scotland, KA27 8RN (077082 234).

Along with the drive you get a cable, a 24-page booklet on DOS utilities, operating instructions, a boot disk and a 16-Volt power pack. The contents of the package tell you this is no ordinary hard drive. Since when has a hard drive been run from a power supply? And the cable fits into the parallel port!

The drive is roughly the size of a standard double column disk box – very small and neat. The front panel of the Tiny Tiger has a green LED which flashes when the drive is active. There's also an illuminated label telling you the capacity of the drive. This should read 30Mb, but somehow 40 appeared on the review model.

The rear of the drive sports three 25-way D-type connectors These operate as a through parallel connector, a connector for a second storage device and as a gateway to the Amiga.

Setting the drive up could not be easier; it's just a matter of using the supplied cable to connect Tiny Tiger to the Amiga, inserting the Free Spirit boot disk into the internal floppy drive and waiting for around 30 seconds. Hard drive auto-booting isn't possible.

Because the drive is an American import the manual tends to be misleading. It takes several re-reads to figure out how to set up the drive. This, say MAST, is going to be rectified as a new manual is in the process of being written. There is no command to park the drive head before switching off. A serious omission because megabytes of information can go astray if the drive is jolted and the head hits the surface.

Overall the drive is well built and is surprisingly fast considering data is being pushed through the parallel port. It's also reasonably cheap. However booting is only possible via floppy and is consequently slow and the very unusual use of the parallel port does not inspire confidence. The power supply and connections are also less than satisfactory. Worth investigating, however.

Kevin Coverdale

HARD DRIVEN FACTS

Drive	Machine	Size Mb	Price £	Manufacturer	Phone
Third Coast	ST	22	399	Third Coast	0257 426464
Third Coast	ST	65	549	Third Coast	0257 426464
Third Coast	ST	130	963	Third Coast	0257 426464
at20	ST	20	399	Systems 2000	0793 514055
at40	ST	40	499	Systems 2000	0793 514055
at70	ST	70	899	Systems 2000	0793 514055
Supra 30	Amiga	30	700	Frontier	0423 530577
Supra 32	ST	32	500	Frontier	0423 530577
Internal	Mega ST	42	850	Frontier	0423 530577
Burocare	Amiga	20	550	Burocare	01-907 3636
Burocare	Amiga	40	650	Burocare	01-907 3636
Burocare	Amiga	80	950	Burocare	01-907 3636
Tiny Tiger 30	Amiga	30	450	MAST	077082 234
Tiny Tiger 42	Amiga	42	580	MAST	077082 234
Tiny Tiger 84	Amiga	84	900	MAST	077082 234
Amdrive	Amiga	40	399	ASAP	724 280222
Megafile 30	ST	30	499	Atari/SDL	01-300 3399
A2090A	A2000	20	514	Commodore	0628 770088
A2090A	A2000	40	845	Commodore	0628 770088

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Supra 30 Mb.....£699.95
Supra 60 Mb.....£1199.95
Impact 20 Mb.....£699.20
Impact 30 Mb.....£745.20
Impact 45 Mb.....£916.20
Quantum 80 Mb.....£1127.76
Tempest All Sizes.....POA
Trackdrive 80Mb.....£790.00
Trackdrive 100Mb.....£997.00
Vortex 40 Meg.....£573.85

Amiga 2000 Hard Drives

Amdrive 40 Mb.....£399.00
Supra 20 Mb.....£547.78
Supra 30 Mb.....£608.65
Supra 60 Mb.....£869.52
SQ44 Removable.....£999.00
SQ44 Cartridge 44 Mb.....£109.25
Tempest All Sizes.....POA

Atari Hard Drives

Supra 30 Mb.....£499.95
Third Coast 32 Mb.....£439.00
Third Coast 65 Mb.....£549.00

Atari Hard Drives

Third Coast 100 Mb.....£899.00
Third Coast 130 Mb.....£963.00
Third Coast 150 Mb.....£1263.00
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Tempest All Sizes.....POA

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Amdrive Controller (inc case).....£169.95
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for use with above

Atari controllers

Full DIY Kits.....POA

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SCSI 350 Mb.....POA
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K Spread 2	£79.99	£60.50
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Sculpt 3D Animator	£129.99	£111.50
Sculpt 4D	£423.99	£355.00
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PAGESTREAM

Truly professional desktop publishing has been a long time coming to the ST and Amiga. With PageStream NEIL SARGENT thinks it has finally arrived.

The much heralded, yet little seen, desktop publishing package *PageStream* is here. The offspring of *Publishing Partner*, the first DTP application specifically for the ST, it is now a fully matured program with all the hallmarks of sophistication impressed on it.

In page approach and look it is very much like the grand-daddy of them all, *PageMaker*, but it also possesses many features found in other high-end (and high-price) Macintosh applications. Its very welcome price-tag of £171.35 might suggest that it is yet another budget DTP package. Budget-priced it may be but budget-featured – no sir! *PageStream* is a selective synthesis of the best parts of other programs and a good few of its own innovations besides, based on the original *Publishing Partner*. Naturally PostScript-compatible scaleable fonts and full colour separations are among the features. But there's more, a lot more.

The latest entrant to the DTP world comes on five disks, containing program, fonts, utilities such as spelling and soft hyphenation dictionaries, clip art, printer drivers and newly written import modules.

The manual for this American program is being rewritten by a team of British authors which should give it a more homely touch and proper spelling.

PageStream is fairly bursting at the seams with goodies and it is to the credit of the writing skills of chief programmer Deron Kazmaier that he has contained the PGSTREAM.PRG to just 211K, enabling, theoretically, owners of 512K STs and Amigas to operate it. Realistically though a minimum set-up of a single drive, mono screen and a one megabyte machine is recommended. A printer would come in handy too

BOXING CLEVER

Existing owners of *Publishing Partner* will find themselves perfectly at home with its big brother. *PageStream*'s dialogue boxes are now more akin to standard GEM although they keep the feel and basic layout of *PP* with some enhancements. It has retained the familiarity and overall concept of creating pages or documents with moveable frames or boxes (objects).

The secret behind *PageStream*'s intuitive and easy approach to the job of putting together pages lies in the combination of an extensive menu bar layout and the comprehensive toolbox section.

The toolbox can be positioned anywhere on the screen. The toolbox's icons include a text column object, picture reshaping icons and a comprehensive set of drawing tools with tools for arcs and elliptical arcs.

The bar has nine sections with pull-down menus, from left to right: File, Edit, Layout, View, Style, Format, Text, Object and Global. A great deal of thought and work seems to have gone into this. The menus and what is contained in them are in logical and time-saving sequences.

Because of the capacious menu bar and its instant range of options the DTP operator now has an at-a-glance choice of 132 initial selections. Only occasionally is there an example of a window within a window. Coupled with the streamlined toolbox this approach makes designing and editing simplicity itself, and a lot of fun - which is what it should be.

PageStream is fully WYSIWYG. Large characters, in whatever screen font, are blocky or jagged but *PageStream*'s printed output, using scalable outline fonts, from a nine-pin dot matrix or laser is truly superb. And at the end of the day that's what really matters in professional desktop publishing.

A large variety of printer drivers come with the package, including ones for colour, PostScript and Linotronic machines. You can of course print to disk if you choose.

PageStream can take text from *Word Writer ST*, *First Word*, and *WordPerfect* for the ST and, *WordPerfect* for the Amiga. ASCII files are also catered for but they will have to be edited. If your favourite WP is not supported *PageStream*'s own text handler is more than adequate for direct and speedy entry.

Graphics or picture handling is comprehensive and .IMG, .IFF, .TNY, .NEO, Degas (including compressed), .GEM Metafile, .EPS (Encapsulated PostScript) and .MACEPS (Macintosh Encapsulated PostScript) provide the facilities to harness scanned images, including colour ones.

Colours are limited only by the screen mode you are in because up to 40 colours can be defined using the RGB (red, green, blue) values. Depending on your printer you could use a spot colour or greyscale background for text. A number of colour printers are supported.

OBJECTIVE APPROACH

Text can be entered either directly into pre-defined columns or 'text objects' can be created for items such as headlines, straps, or special effects like reverse blocks. Either way it can be treated as an object and moved around the page, or copied, pasted or appended to other page or document. In its column form it can be squeezed into narrower columns without losing its point size but it will leave you with an overspill of text. It is unwise to stretch a text column as it will lose its paragraph format. It's far wiser to alter any elements such as point size, typeface, or style attributes by highlighting it and changing it from within the Style menu.

The same highlighting routine will enable you to instantly recall on screen the exact typographical properties you gave to any section of text.

PageStream recognizes two class-

TIMES ARE-A-CHANGEABLE

With the use of font caching printing is fast. Ten fonts, including the stalwarts Times (called Tymes for copyright reasons) and Helvetica are already included. Together with a large selection of style attributes this enables you to produce scores of different typographical effects.

The program provides a user-definable system for width and height, giving literally thousands of permutations of point size. Using the X and Y axis you can specify, for example, 36 point width and 80 point height. You can direct the program, (subject to memory) to produce text and line sizes from half a point to 1,310 point. If you want to you can create billboard style posters by using the 'tiling' facility. Beside point sizing eight other measuring systems are supported.

With the ability to fine-tune character spacing (kerning) to a tenth of a thousandth of an em (an em is a 72nd of an inch), together with advanced wordprocessing features, SoftLogik have given the user the utmost typographical control.

Text can be made to flow around graphics. This runaround facility comes in five modes and will adequately handle the most gangling of objects.

■ ***PageStream* can customise the existing fonts in a nearly infinite number of combinations giving tutal typographical control.**

GROUP THERAPY

One of the most important features of *PageStream* is its ability to group objects. Imagine that you have created a complex 'object' - an advertisement perhaps. It is made up of two small graphics and half a dozen different types of text, of differing size and font. You have drawn a thick lined box around it to complete the ad. It is your work of art and has taken time. You decide that you want to place it somewhere else on the page or copy it onto another page. With most DTP packages this means that your one item has become ten separate objects - all of which have to moved, copied, pasted and re-aligned. It is a tortuous procedure, involving constant trips to the clipboard or buffer before it can be repositioned.

With *PageStream* by simply drawing a rubber-band around the entire collection of objects and using the Group command all those selected are combined into a single object called a group. A single set of sizing squares will appear around the illustration and you can treat your new object just as any other: sizing, copying and pasting and then appending it to another document. The group will retain all of the original elements you gave it. Such a facility is a boon to anyone who regularly has to reproduce a complex design of graphics and text, such as a logo or a standing advertisement in a newsletter or magazine.

Marvellous.

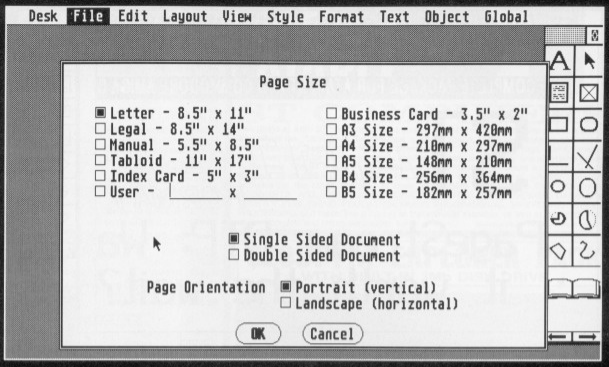
es of graphic files: bit-map pictures such as *Degas*, *Degas* compressed and .IMG files, and object orientated drawings such as *Easy Draw*. Once they have been pasted in they too become objects and can be clicked on and moved around the page

A similar function is the Select All option under the Edit menu. By selecting this command all the objects on a page can be 'picked up' and moved or copied as a multiple object from one page to another.

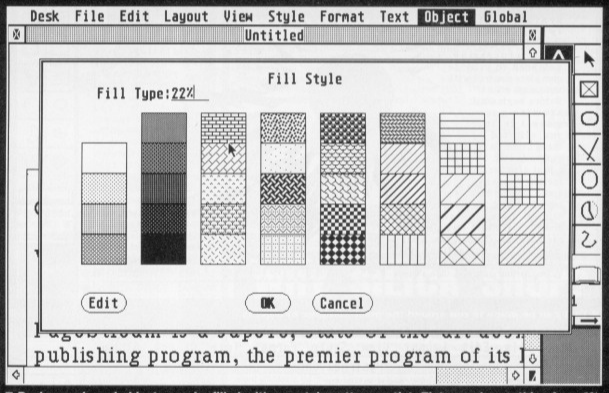
GREEKING TO YOU AND ME

No program is absolutely perfect and one minor handicap that *PageStream* suffers from is that it is a little slow at updating or re-drawing the screen. This can be speeded up somewhat though by using a technique called greeking. This allows you to make the program display all text under a pre-defined point size as a series of dashes instead of re-drawing large blocks of text. Screen re-draws can be further quickened by clicking off the Show Pictures function. One screen function that is a real boon is the Variable Zoom feature which can magnify a selected area up to 1,500 per cent of actual size.

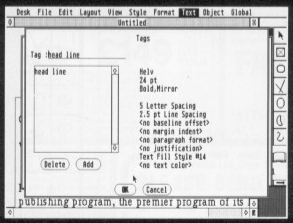
PageStream allows you to make your own style sheets and number every


Desk File Edit Layout View Style Format Text Object Global
Page Size
Letter - 8.5" x 11"
Legal - 8.5" x 14"
Manual - 5.5" x 8.5"
Tabloid - 11" x 17"
Index Card - 5" x 3"
User - x
Business Card - 3.5" x 2"
A3 Size - 297mm x 420mm
A4 Size - 210mm x 297mm
A5 Size - 148mm x 210mm
B4 Size - 256mm x 364mm
B5 Size - 182mm x 257mm
Single Sided Document
Double Sided Document
Page Orientation
Portrait (vertical)
Landscape (horizontal)
OK
Cancel

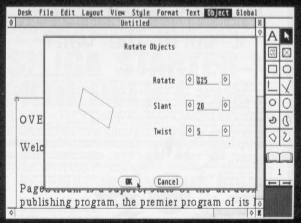
■ **The first stage when running *PageStream* is deciding page size. There's everything from business card size right up to double-page tabloid size. You can also determine page orientation: portrait (vertical) or landscape (horizontal). You can define your own page size if none of the standard page sizes meet your needs. You must be careful not to create pages larger than free memory.**



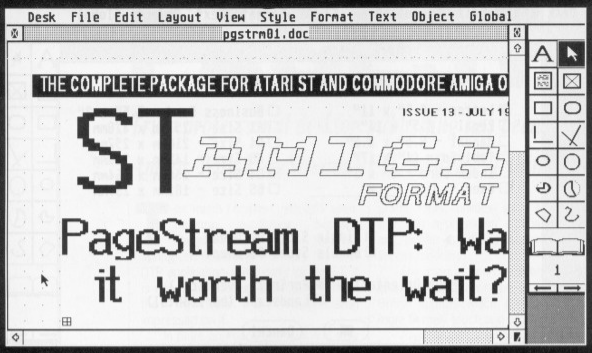
■ **Backgrounds and objects can be filled with a certain pattern or tint. Tints can be anything from 0% (white) to 100% (black) while patterns range from horizontal lines to very complex designs.**



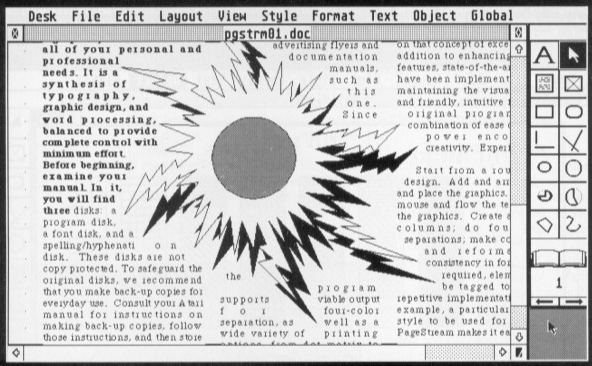
■ **You can set up 'style sheets' for your documents. These store text style information such as typeface and text size. Producind a complex document is made much simpler and many keystrokes can be avoided.**



■ **Objects, including text, can be rotated and distorted. These effects are particularly useful for text – headlines on their side down the edge of a page are easy to achieve, something which many Macintosh programs would do well to emulate.**


Desk File Edit Layout View Style Format Text Object Global
pgstrm01.doc
THE COMPLETE PACKAGE FOR ATARI ST AND COMMODORE AMIGA O
ISSUE 13 - JULY 19
ST AMIGA
FORMAT
PageStream DTP: Wa
it worth the wait?

■ The flexible zoom facility allows for precise layouts.


Desk File Edit Layout View Style Format Text Object Global
pgstrm01.doc
all of your personal and professional needs. It is a synthesis of typography, graphic design, and word processing, balanced to provide complete control with minimum effort. Before beginning, examine your manual. In it, you will find three disks: a program disk, a font disk, and a spelling/hyphenation disk. These disks are not copy protected. To safeguard the original disks, we recommend that you make back-up copies for everyday use. Consult your Atari manual for instructions on making back-up copies, follow those instructions, and then store
advertising flyers and documentation manuals, such as this one. Since
on that concept of excel addition to enhancing features, state-of-the-a have been implement maintaining the visua and friendly, intuitive original program combination of ease power enco creativity. Experi
Start from a rou design. Add and ar and place the graphics, mouse and flow the te the graphics. Create columns, do for separations; make co and reforme consistency in for required, elem be tagged to
the
supports four-color separation, as well as a wide variety of
program viable output printing
repetitive implementati example, a particula style to be used for PageStream makes it ea

■ Text can be made to run around the most complex of objects.

■ Ten fonts and powerful typographical control features give huge scope for interesting designs.

object as it is entered. You can also specify your own master pages. Professionally created templates for the newcomer to DTP are not supported and this would be a welcome addition to any future upgrade. Three tutorials, however, guide you easily into the intuitive workings of this complex yet easy-to-use program.

As mentioned, it comes with 10 fonts, which is more than enough, but it would have been better if SoftLogik had dispensed with at least a couple of them, notably Oriental and Creative or Saturn, in return for a good thick, condensed sans serif typeface suitable for impact headlines. The nearest it can provide for a newspaper style 'Lead' headline is Helvetica Bold. At this point it is worth noting that tabloid-sized newspapers are catered for. The maximum on-screen document size is 18.2 by 18.2 inches - not quite large enough for a broadsheet paper, such as *The Independent*. Eleven pre-set page sizes, including ones for business cards and manuals are in the Layout menu.

PageStream is a mine of pleasant surprises and useful features. Among these is a screen colours editor, which with a mono set-up means you can work with white on black; a facility to set and save macros which allow you to perform a sequence of common editing operations by pressing a single key, and support for the full ASCII character set, providing scores of special characters such as bullets, trademark, copyright, registered trademark and foreign language symbols. You can also snap to guides and grids, use text routing, edit co-ordinates, insert pages, edit fonts, convert *Publishing Partner* files to *PageStream* and add to both its spelling and hyphenation dictionaries. For the power user,and this is undeniably a power package, virtually every command can be given via the keyboard.

POWER TO THE PEOPLE

PageStream comes with so many features that it is impossible in this space to describe them all - suffice it to say that I cannot stress enough the truly remarkable quality of the printed output.

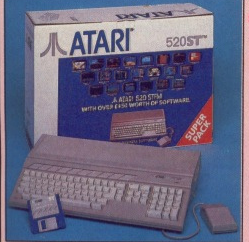
PageStream is a milestone in DTP history on the ST and Amiga. It provides almost every feature of other programs, some costing more than three times the price - plus some of its own specialities.

PageStream is just the shot in the arm that the ST and Amiga computers need to put them fairly and squarely on the high-end desktop publishing map.

It's only real disadvantages are those of all powerful DTP packages - the hardware needed to use them in any practical way. As ever a megabyte and twin disk drives are a good idea and if you can stretch to a hard disk life becomes so much easier.

PageStream ■ £171 ■ Silica Systems ■ Sidcup, Kent,(Tel 01-309 1111)

520ST-FM SUPER PACK



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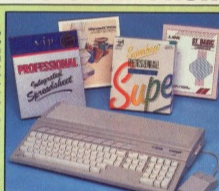

£499 INCLUDING VAT

With SM124 mono monitor: £598 INC VAT

With SC1224 colour monitor: £798 INC VAT

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PROFESSIONAL PACK PRICE:		£499.00

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£899 INC VAT	£1199 INC VAT
+mono monitor = £998	+mono monitor = £1298
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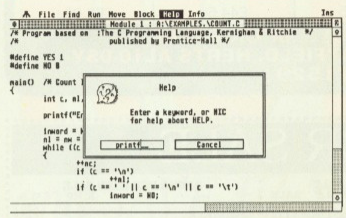

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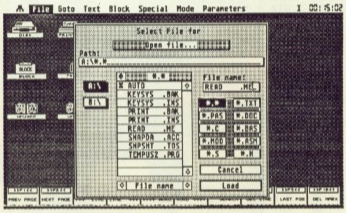

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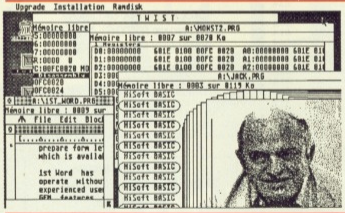

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PURE LOGIC

Only Vulcans and computers think logically. TUBBY FOSTER has some hints for emulating them in assembler.

Logical operations treat data as simple bit patterns (or bit masks). NOT takes one operand and merely flips the bits, 0s become 1s and 1s become 0s. This section of code inverts a screen (best seen in monochrome):

```
            MOVEA.L  A5,A0     ptr
to screen base
            MOVE #32000/4-1,D0
            *32000 byte screen
invert_lp   NOT.L (A0)+
            DBRA D0,invert_lp
```

The remaining logical operations, OR, AND, EOR, use two operands. OR (inclusive or) combines two bit masks by producing 1s where either operand originally contained 1s vis:

```
          10011001
OR        00001111
Gives     10011111
```

EOR (exclusive or) gives 1s where either operand but not both operands have 1s, vis

```
          10011001
EOR       00001111
Gives     10010110
```

AND gives 1s only where both operands have 1s, vis:

```
          10011001
AND       00001111
Gives     00001001
```

Logical operations are useful when dealing with bit-map graphics. Suppose, for instance, we wish to discard the right-most seven bits of a word in D0 then "AND #$FF80,D0' would do it. Where 1s appear in #$FF80 the corresponding bits in D0 are left unchanged, where 0s appear the bits in D0 are cleared.

SHIFT OPERATIONS

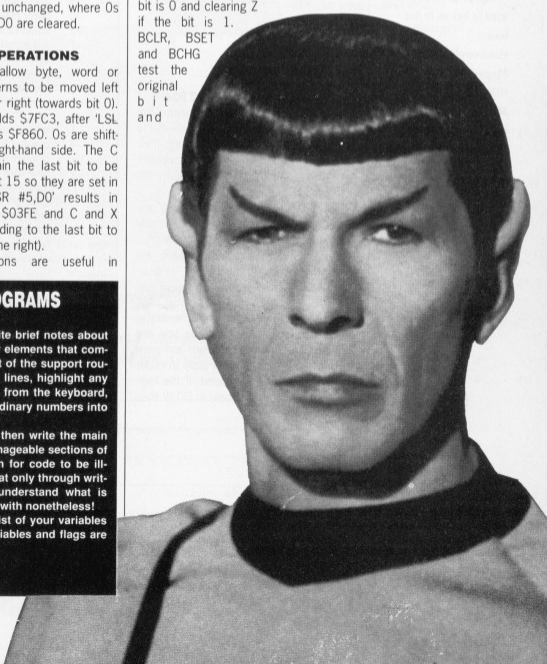
Shift operations allow byte, word or longword bit patterns to be moved left (towards bit 31) or right (towards bit 0). Suppose D0.W holds $7FC3, after 'LSL #5,D0' D0.W holds $F860. 0s are shifted in from the right-hand side. The C and X flags contain the last bit to be shifted out from bit 15 so they are set in this example. 'LSR #5,D0' results in $7FC3 becoming $03FE and C and X are cleared (according to the last bit to be shifted out on the right).

Shift operations are useful in scrolling routines (see the file SOURCE4.S) but can also be used for simple multiplication and division. A shift left by one place is equivalent to a multiply by two so 'LSL #4,D0' multiplies the contents of D0.W by 16. 'LSR #5,D0' divides the contents of D0 by 32. These instructions are much faster than the usual MULU. Like MULU, LSL and LSR are 'unsigned'. In the case of a left shift the sign extended part of both positive and negative numbers is correctly maintained but a right shift invalidates negative numbers. To avoid this the instruction ASR (arithmetic shift right) ensures that the MSBit, i.e. the sign bit, is always maintained for each shifted place. For example,'ASR.B D6,D4' when D6 holds 3 and D4.B holds -48 gives -6 ($FFD0 becomes $FFFA). ASL also exists but is equivalent to LSL. When using shift operations to multiply and divide you must bear in mind that an overflow or underflow may occur if you shift too much (-1 is unchanged by ASR).

Rotate (ROR, ROL) operations are similar to shift but the bits shifted out are wrapped around. As bits move out from one end they are moved into the other end. 'ROL #2,D1' changes $F020 held in D1.W to $C083.

BIT MANIPULATION

Four instructions operate an single bits. BTST tests a specific bit, leaving the bit unchanged and setting Z if the bit is 0 and clearing Z if the bit is 1. BCLR, BSET and BCHG test the original bit and



GENERAL POINTS ON WRITING PROGRAMS

For large programs it is necessary to make sound plans. Write brief notes about what the program should achieve and then identify the major elements that comprise the program. Once this is clear in your mind make a list of the support routines you anticipate will be needed. Such routines may draw lines, highlight any given region of a screen, read a 'Return' - terminated string from the keyboard, monitor the mouse, flip between different screens, convert ordinary numbers into a suitable (ASCII) form for printing.

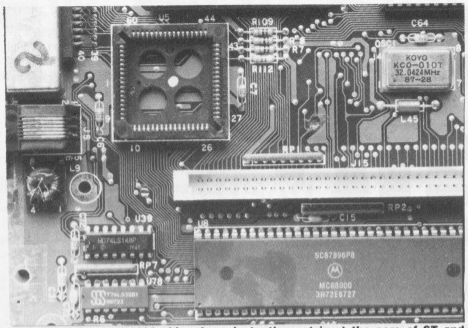
Make sure that the support routines are fully debugged then write the main sections of code that use them. You have to isolate short, manageable sections of code that can be tested without much trouble. It is common for code to be ill-defined and contain mistakes at least initially. You may find that only through writing something, albeit inaccurately, is it possible to fully understand what is required and how to go about writing it. It's worth persevering with nonetheless!

You will find it helpful to keep register A6 pointing to a list of your variables throughout the code. In this way you can be sure that all variables and flags are immediately at hand via an offset from A6, for example:

```
MOVE  20(A6),D0          x centre co-ordinate
```

ST FURTHER READING

ST programmers buy: The Concise Atari ST Programmer's Reference Guide by K. Peel, published by Glentop



■ **Chipping in: the 68000 chip whose instuction set is at the core of ST and Amiga assembly language programming**

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Hardware Reference Manual
ROM Kernel Reference Manual: Exec
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Intuition Reference Manual published by Addison-Wesley (get the new Kickstart version 3 editions)
AmigaDOS Manual published by Bantam.

then clear, set or invert the bit respectively. These single bit manipulation instructions are useful for implementing your own flags. Flags keep a record of whether a given condition applies or not. For instance if bit 3 of the byte at label 'my_flags' is set to record that text should be proportionally spaced then the following lines could appear in a text routine.

```
Print   BTST #3,my_flags(PC)
        BNE.S proportional_text
        {code for regular text}
        RTS
prop_text
        {code for proportional
text}
        RTS
```

SPURIOUS INSTRUCTIONS

Of the instructions not yet covered the following are most useful. A table of the entire 68000 instruction set giving their permitted addressing modes appears on this month's cover disk as 'INST_68.S'.

'EXG Rx,Ry', where Rx and Ry are any data or address registers, simply exchanges the entire register contents.

'JMP <ea>' and 'JSR <ea>' are jump and jump to subroutine instructions which are like BRA and BSR but jump to absolute addresses. 'JSR (A0)' is particularly useful for implementing a so-called jump table. Suppose you are writing a line drawing program and want to treat each colour separately in order to achieve maximum speed. If the logical colour (0 to 15) is held in D0.W then we could use:

```
  LSL     #2,D0  index -> long
word offset
  MOVEA.L line_vectors
(PC,D0),A0
  JMP     (A0) line_vectors
  DC.L    line_colour0
  DC.L    line_colour1
     etc. line_colour0
  MOVE    ------
  {colour-specific code}
```

Note that the indirection implied by the parentheses in JSR (A0) refers to where the jump is to be made to not where the address for the code is to be found!

'SWAP Dx' swaps the MSWord of data register Dx with LSWord of the same register. So SWAP D3 when D3.L holds $12345678 gives $56781234 (notice how hexadecimal numbers are easy to understand).

'TST <ea>' tests bytes, words and longwords. The data is unchanged but the N and Z flags are updated according to whether the tested data is negative or zero.

CONCLUSION

The fundamentals of 68000 programming have now been covered. To progress further you should write many programs that perform simple tasks in order to familiarise yourself with the language. Operating system routines held in the ST and Amiga ROMs can be useful but are often slow and primitive - being written in C, BCPL or some such. With perseverance you will realize that assembly language itself is nothing. It's like any other language, French, English, FORTRAN, in that what counts is the clear expression of ideas.

BRANCHES, OVERFLOWS AND CARRIES

The branch instruction 'BRA label' is used to alter the program flow i.e. to leave one section of code and jump to another section at the address identified by the label.

Branches can be made conditional. 'Bcc label' causes a branch to the label if the condition code, cc, is true. Available conditions are:

cc	condition
CS	carry set (C set)
CC	carry clear (C clear)
EQ	equal (Z set)
NE	not equal (Z clear)
MI	minus (N set)
PL	plus (N clear)
VS	overflow set (V set)
VC	overflow clear (V clear)
HI	high (C and Z clear)
LS	low or same (C or Z set)
GE	greater than or equal ((N and V set) or (N and V clear))
GT	greater than ((N and V set and Z clear) or (N, V and Z clear))
LE	less than or equal ((Z set) or (N set and V clear) or (N clear and V set))
LT	less than ((N set and V clear) or (N clear and V set))

The conditions involving the overflow flag, V, should be used for signed arithmetic and those involving the carry flag, C, are for unsigned arithmetic.

If an arithmetic operation tries to produce a signed number which is too positive (>127 for bytes) or too negative (<-128 for bytes) then an overflow condition is generated, i.e. the V flag is set. This can be trapped out using a conditional branch:

```
    SUB   #71,D0
    BVS   overflow_found       branch if overflow
    ..........  continue here for valid subtraction
```

BVS reads 'branch to the label if the overflow flag is set' or 'branch on overflow'.

If unsigned addition produces a carry (adding bytes 51 and 230 would do, for instance) or if an unsigned subtraction needs a borrow (as in 51-230) then the C flag is set. This could be tested for as follows:

```
    ADD   D7,(A1)+     (example ADD instruction)
    BCS   carry_found
```

It is best to ensure that data is kept within reasonable limits so overflows or carries do not occur. This isn't always possible though so if you are working with unsigned data test for a carry and if you are using signed data look for an overflow.

If you use GE, GT, LT or LE (for signed data) or HI and LS (for unsigned data) after a compare instruction (see body text) then you should read the condition code as: 'destination, condition code, source'. For example:

```
    CMP   D6,D7
    BGE   condition_true
```

means if D7 is greater than or equal to D6 then branch to 'condition_true'.

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Window:	ON MENU..GOSUB, ON MENU KEY, ON MENU BUTTON, WINDOW MENU, MENU KILL, OPENS, CLOSES, FRONTS, BACKS, MOVES, TITLES, SETSPEN, SCREEN, OPENW, CLEARW, TITLEW, BACKW, FULLW, MOVEW, SIZEW, LIMITW, SETPEN, WINDOW, ALERT
I/O:	INPUT, LINE INPUT, FORM INPUT, PRINT, PRINT USING, MODE, DEFNUM, POS, TAB, DATA, MOUSE, LPRINT, LPOS, HARDCOPY, SOUND, WAVE
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Strings:	LEFT$, RIGHT$, MID$, INSTR, RINSTR, STRING$, SPACE$, SPC, PRED, SUCC, LEN, TRIM, UPPER$, LSET, RSET
Data types:	BOOLEAN, BYTE, WORD, INTEGER, FLOAT, STRING
Control:	IF.. ELSE.. ENDIF, ELSE..IF, ON GOSUB, SELECT CASE, FOR..TO, REPEAT..UNTIL, WHILE..WEND, DO..LOOP, DO WHILE, DO UNTIL, EXIT IF, GOSUB, PROCEDURE,, LOCAL, FUNCTION, DEFFN, ON BREAK, ON ERROR, ERROR, EVERY, AFTER, REM, GOTO, PAUSE, DELAY, END, EDIT, STOP, NEW, LOAD, SAVE, PSAVE, LIST, LLIST, CHAIN, RUN, SYSTEM, QUIT, TRON, TRACE, INLINE, C:, MONITOR, CALL, RCALL
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Memory:	DIM, OPTION BASE, ARRAYFILL, TYPE, ASC, CHR$, STR$, BIN$, OCT$, HEX$, VAL, CINT, CFLOAT, PEEK, POKE, DPEEK, DPOKE, LPEEK, LPOKE, SPOKE, SDPOKE, SLPOKE, BYTE, CARD, INT, LONG, FLOAT, SINGLE, DOUBLE, CHAR, VARPTR, ARRPTR, ABSOLUTE, CLEAR, CLR, ERASE, SWAP, SSORT, QSORT, INSERT, DELETE, FALSE, TRUE, DATE$, TIME$, SETTIME, TIMER, LET, VOID, FRE, BMOVE, BASEPAGE, HIMEM, RESERVE, INLINE, MALLOC, MFREE, MSHRINK
Window:	ON MENU, MENU, ON MENU BUTTON GOSUB, ON MENU KEY GOSUB, ON MENU IBOX GOSUB, ON MENU MESSAGE GOSUB, MENU OFF, MENU KILL, MENU, OPENW, CLOSEW, WHAND, WINDEX, CLEARW, TITLEW, INFOW,TOPW, FULLW, WINTAB, RC INTERSECT, RC COPY, ALERT, FILESELECT
I/O:	INKEY$, INPUT, LINE INPUT, FORM INPUT, FORM INPUT AS, PRINT, PRINT AT, WRITE, LOCATE, PRINT USING, PRINT AT USING, MODE, DEFNUM, CRSCOL, CRSLIN, POS, TAB, HTAB, VTAB, KEYPAD, KEYTEST, KEYGET, KEYLOOK, KEYPRESS, KEYDEF, DATA, READ, RESTORE
Disk/File:	DFREE, CHDRIVE, DIR$, CHDIR, DIR, FILES, FGETDTA, FSETDTA, FSFIRST, FSNEXT, MKDIR, RMDIR, EXIST, OPEN, LOF, LOC, EOF, CLOSE, TOUCH, NAME AS, RENAME, KILL, BLOAD, BSAVE, BGET, BPUT, INP, OUT, INPUT, LINE INPUT, PRINT, PRINT USING, WRITE, STORE , RECALL, SEEK, RELSEEK, FIELD, GET, PUT, RECORD, INPOUT, INPAUX, INPMID, MOUSEX, MOUSEY, MOUSEK, MOUSE, SETMOUSE, HIDEM, SHOWM, STICK, STRIG, LPRINT, LPOS, HARDCOPY
Numeric:	ABS, SGN, ODD, EVEN, INT, TRUNC, FIX, FRAC, ROUND, MAX, MIN, SQR, EXP, LOG, LOG10,SIN, COS, TAN, ASIN, ACOS, ATN,DEG, RAD, SINQ, COSQ, RND, RANDOM, RAND, RANDOMIZE,DEC, INC, ADD, SUB, MUL, DIV, PRED(), SUCC(), MOD, BCLR, BSET, BCHG, BTST, SHL, SHR, ROL, ROR, AND, OR, XOR, IMP, EQV, SWAP, BYTE, CARD, WORD
Strings:	LEFT$, RIGHT$, MID$, PRED, SUCC, LEN, TRIM$, INSTR, RINSTR, STRING$, SPACE$, SPC, UPPER$, LSET, RSET, MID$
Control:	IF.THEN..ELSE, ELSE..IF, ON GOSUB, SELECT, CASE, DEFAULT, ENDSELECT, CONT, FOR, STEP, NEXT, DOWNTO, REPEAT, UNTIL, WHILE, WEND, DO, LOOP, DO WHILE, DO UNTIL, LOOP WHILE, LOOP UNTIL, EXIT IF, GOSUB, PROCEDURE, RETURN, VAR, LOCAL, FUNCTION, RETURN, ENDFUNC, DEFFN, FN, ON BREAK, ON BREAK CONT, ON BREAK GOSUB, ON ERROR, ON ERROR GOSUB, RESUME, RESUME NEXT, ERROR, ERR, FATAL, EVERY, EVERY STOP, EVERY CONT, AFTER, AFTER STOP, AFTER CONT, REM, GOTO, PAUSE, DELAY, END, EDIT, STOP, NEW, LOAD, SAVE, PSAVE, LIST, LLIST, CHAIN, RUN, SYSTEM, QUIT, TRON, TROFF, TRACE, DUMP
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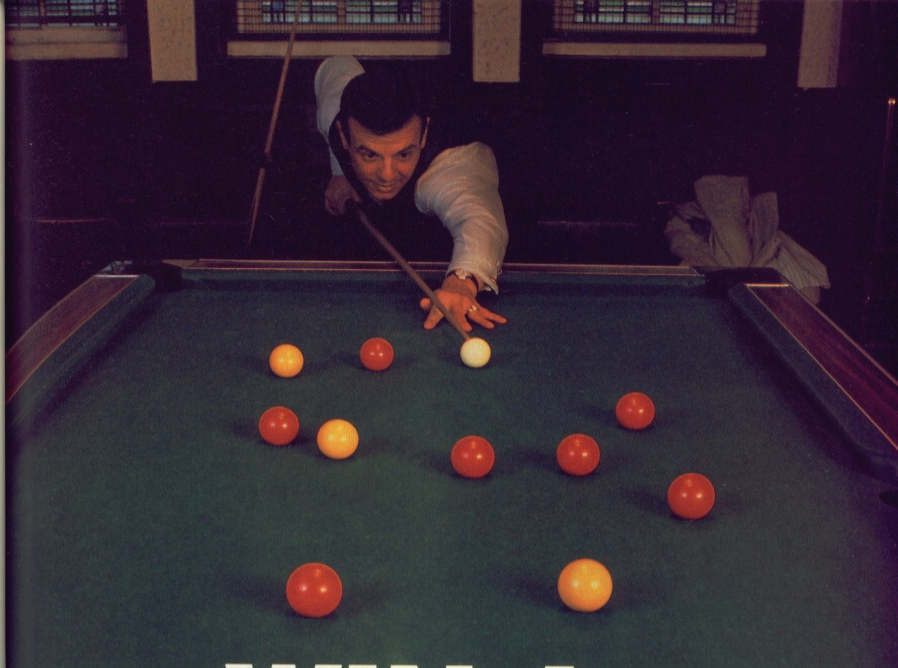

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QUESTIONS

1) What number can be found on the black ball?
   a) 7
   b) 8
   c) 15

2) How many feet must be kept on the floor at all times when playing pool?
   a) none
   b) one
   c) two

3) How many balls are there on the table including the black?
   a) 22
   b) 15
   c) 16

RULES

1) No bribing the judges. (unless it's a very big bribe)
2) Only one entry per person. (Isn't it strange how two hundred people called Wayne Pratt live at the same address?)
3) The editors decision is final. (Great that means he'll be picking the winners)
4) There is no rule four.

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SCREEN PLAY

..NEWS....NEWS....NEWS..

With the PC Show coming up in September, most of the large software houses are looking to hold back their big titles for release closer to the date. As a result, it looks as if the traditionally quiet summer months are going to be plunged into darkness, but not all is doom and gloom. Mirrorsoft's summer line-up includes the much-awaited **BLOODWYCH** and **PHOBIA** as well as the **FALCON** mission disks. Hewson's

Bloodwych out for the summer.

Astaroth is due soon and we should hopefully see some more US Gold conversions before autumn dawns. The games held up for the PC Show include Hewson's Stormlord and Shinobi from Mastertronic. **TEAM YANKEE** and Knight Force from Entertainment International have been delayed but US Gold are responsible for some of the biggest hold-ups. The much-hyped **OUTRUN EUROPA**, Strider and Black Tiger have all fallen victim of the summer blues. Some of the original and **STATE-OF-THE-ART** Mirrorsoft games, previewed last month, also look unlikely to be out much before Christmas.

Meanwhile, Softek, the company that brought you **GARFIELD** and have been threatening to release the sequel, Garfield - A Winter's Tail, have decided to change their name to **THE EDGE** and mark this momentous occasion by finally releasing this much-previewed game. **DARIUS** is their latest project, scheduled for release in September which means we might just get to see it next Autumn.

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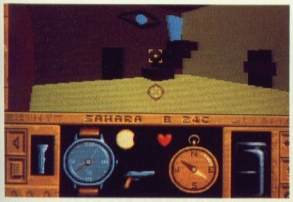


■ One puzzle that occurs often is a match making puzzle. Here you have to shoot one eye so that a blockage near to the other eye is removed.

■ Some rooms are blacked out and that's when you need your torch. Don't waste the batteries though.

In Incentive's latest Freescape venture you can walk like an Egyptian, well an archaeologist anyway. The setting has moved from a futuristic outer space to a 1930s Earth, the good old Indiana Jones era.

Earth is in danger of destruction (yet again), thanks to the curse of a pharaoh. The pharaoh was a bit cross with his people in the dim and distant past and so he put a curse upon the pyramid, viz: if the suns rays are blocked from the pyramid during the hours of daylight then the moon will explode and cover the earth in meteorites, not to mention the tidal effects of the destruction *(I said not to mention the tidal effects, Ed).*

Amiga – Mouse/keys. £24.99

ST – £24.99. Imminent

The action takes place in the said pyramid and you have to reach the shrine of the sun god at the top of before 10am, which is when a total eclipse of the sun is due. If you don't then watch out for falling debris.

Total Eclipse is more problem-oriented than the previous two Freescape games, *Driller* and *Darkside*, and many of the problems can be solved in more than one way. Your most dangerous adversary is time, the inhabitants in the pyramid are less hostile than you find in the outer space adventures. That doesn't mean you're alone though, because no Egyptian game would be complete without a mummy or two. Your only other danger is falling from a great height.

Another feature that has been added to the game is darkness. Some rooms are pitch black and so you have to turn on your trusty torch, there isn't an infinite supply of battery power however so you have to take care when you use you torch and never forget to switch it off when you don't need it. The whole room isn't illuminated by the torch beam, so you have to look around more to spot doors, ankhs and other important details. Ankhs are Egyptian keys used to open locked doors and allow access to other parts of the pyramid.

One other thing that you have to keep your eye on is your water bottle. Being in the middle of the desert you do tend to get a little overheated and so you have to keep cool with a drink of water. If you run out of water your heart beat speeds and if it gets too fast you'll die.

Water can be replenished from troughs littered throughout the pyramid.

EFFECTS

Graphically *Toltal Eclipse* is very similar to the previous Freescape games, with the same simplistic, but easily recognisable 3D shapes.

Sound in the Freescape has been getting much better and *Total Eclipse* has the best yet. The sound effects are very good and the tune is excellent. The music really conveys the atmosphere of the game, which is a very important factor in any game.

STILLS 0 1 2 3 4 5

ANIMATION 0 1 2 3 4 5

SOUNDTRACK 0 1 2 3 4 5

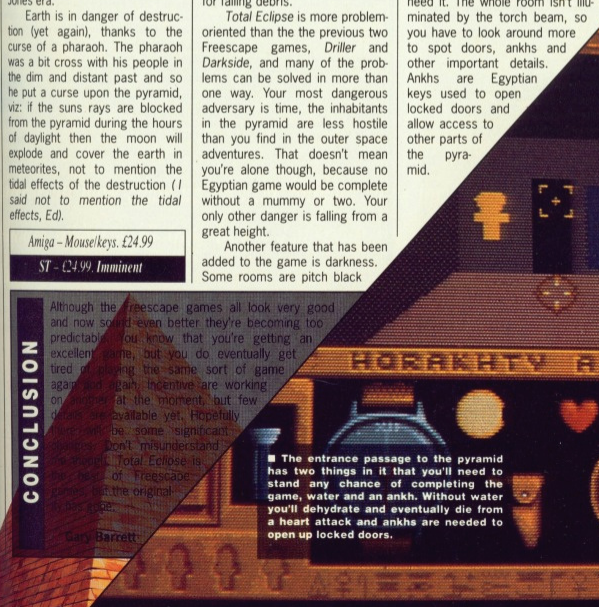
LASTING INTEREST 0 1 2 3 4 5

OVERALL 78%

CONCLUSION

Although the Freescape games all look very good and now sound even better they're becoming too predictable. You know that you're getting an excellent game, but you do eventually get tired of playing the same sort of game again and again. Incentive are working on [illegible] at the moment, but few details are available yet. Hopefully there will be some significant [illegible] don't misunderstand, *Total Eclipse* is [illegible] of Freescape [illegible] the original [illegible]

Gary Barrett



■ The entrance passage to the pyramid has two things in it that you'll need to stand any chance of completing the game, water and an ankh. Without water you'll dehydrate and eventually die from a heart attack and ankhs are needed to open up locked doors.

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Mirrorsoft have come up with the ultimate prize for any fantasy addict – 50 trips to the Labyrinth role-playing fantasy zone.

WIN A TRIP TO LABYRINTH

Last year Mirrorsoft released the astonishing *Dungeon Master* on the ST which spawned a revolution in adventure games. It continued to sell over the months and has now sold a staggering 100,000 copies which, particularly for the ST and Amiga scene, is a great achievement.

Meanwhile Mirrorsoft are devoting their time to their latest release, *Bloodwych*, a game destined to create as much of a storm as *Dungeon Master* did last year. With a fantastic gameplay and an original two-player feature, *Bloodwych* is a game you'll hear a lot about over the next few months - just read our interview with the programmers on page 82.

To celebrate our birthday, Mirrorsoft are giving away 50 Labyrinth courses to *ST Amiga Format* readers. Labyrinth is the hugely popular real-life fantasy game set in the South East and based around a Dungeons and Dragons storyline. In addition, 20 runner-up prizes of *Bloodwych* are also on offer to those of you who really can't wait for it to get into the shops.

Answer the three questions below and send your answers on a postcard to MIRRORSOFT LABYRINTH COMPETITION, ST AMIGA FORMAT, FUTURE PUBLISHING, 4 QUEEN STREET, BATH, BA1 1EJ. Remember to include the name of your computer and your age on the card. The first 70 prize winners will be pulled from a hat on July 13.

QUESTIONS

Which American software house was responsible for programming *Dungeon Master* on the ST and Amiga?

a) Readysoft
b) CIA
c) FTL

What is the name of the sequel to *Dungeon Master*, due to be released soon?

a) *Revenge of Gandelf*
b) *Gauntlet IV*
c) *Chaos Strikes Back*

Which computer is *Bloodwych* currently being written on?

a) ZX 81
b) Amiga
c) ST

RULES

1. Competition entries must be received by July 13.

2. Employees of Future Publishing and Mirrorsoft may not enter unless they want to find themselves banished to a Welsh Cave.

3. The editor's decision is absolutely final and no correspondence will be entered into.

Emperor Bios is a weird type of guy who's obsessed with destruction of the Universe. Now this might not be too bad if he hadn't drifted somewhere else to make babies, all of which have grown into headcases desperate to destroy all civilisation.

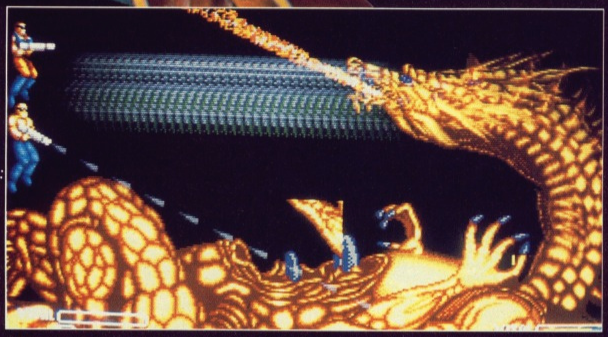
AIM

The cities they destroyed have been ruined and have become known as Forgotten Worlds. But two superior warriors have been created to fight back against the evil and rescue the world back from Bios. With the Emperor protected by three demigods – The Golden Dragon, The God of War and The Parameclum – you just know you're going to have a hard job ahead of you as one of the good guys.

STRATEGY

The game is split into four levels which take you from the City Scape, through the Dust World and Hi-Tech World and into the God's Domain.

At the end of each of the first three levels you encounter one large monster who must be beaten into submission using whatever



■ Level two features deadly snakes liberally scattered across the landscape. Gun emplacements line the path towards the Dust Dragon who can only be destroyed by a blast of firepower to the heart.

■ The shop's the place to go to buy all the weaponry you need.

■ Simultaneous play means that two characters can be controlled with a joystick each. This makes shooting giant ice-monsters far easier if you can bear to work together.

■ The God of War features at the end of level three. As soon as you have negotiated with a multitude of lizards it's into some real battle. The God of War protects the fortress and can only be destroyed by firing at his shoulder.

PROGRAMMERS

Forgotten Worlds was programmed by Arc, a Birmingham programming team. Tim Round was responsible for the ST conversion with Chris Coupe writing for the Amiga. Brian Nilsson, Richard Underhill and Warren McCormac did the eight-bit conversions. The graphics were designed on the Amiga by Paul Walker. *Deluxe Paint* was used and then the images were ported down to the ST and eight-bit machines. In all the game took six months of programming time to complete with all versions written on the host machine. *Devpac 2* was used in the coding of the ST and Amiga versions.

ARC are signed up to work with US Gold on a still-to-be-announced project, however, we can reveal that a *Crackdown* conversion is almost certainly their next step.

■ On your way to meet Bios you confront a host of unlikely enemies – even Monks make an appearance but Bios is still the real God.

firepower you've managed to accumulate.

The City Scape sees you making your way towards the entrance of the underground complex. The guards here are fairly easy to overcome although some giant robotic beasts make the occasional appearance just for good measure. Once inside, you must steer through potentially lethal gas pipes and on towards the next level. The first end-of-level guardian makes an appearance here although some good shooting soon remedies this.

The other levels follow the same theme with a range of monsters paving the way to an end-of-level guardian.

As you progress through the different levels you come across the occasional shop like no branch of Sainsbury's you've ever seen. Eight different types of weaponry are on sale ranging from homing missiles to laser power. Depending on the number of tokens retrieved during play, you can purchase enough firepower to make sure you become no one's fool. These tokens can be collected by firing a few blasts at the enemy and catching the blue circle he leaves behind.

The trickiest thing to master in *Forgotten Worlds* is the joystick movement. With no fire button pressed you move around in the usual way but if you press fire and hold the joystick to either the left or the right then you begin to rotate around at speed. This means that you can aim your gun in any direction and fire but if you get carried away during gameplay you can find your character turning round and round without successfully shooting anyone.

EFFECTS

The graphics are smooth and well defined although the Amiga version is better in this department. The most striking aspect of the game is the colour and detail of a whole army of different monsters. Particularly effective are the larger monsters which have been animated to be as menacing as possible although even then their movements are limited.

The screen scrolls relatively smoothly during gameplay with moments of battle bearing a remarkable resemblance to *R-Type* at times.

Sound effects are not sampled and do little to tax your ST, however they do create the kind of atmosphere conducive to some good old-fashioned blasting. Again, the Amiga version boasts more impressive effects here.

ST – Joystick. £19.99

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■ Superb graphics make this shoot-em-up visually brilliant particularly in this Amiga version.

STILLS 0 1 2 3 4 5

ANIMATION 0 1 2 3 4 5

SOUNDTRACK 0 1 2 3 4 5

LASTING INTEREST 0 1 2 3 4 5

OVERALL 86%

■ Blasting away at the enemy will produce a token which can be traded in at the shop.

CONCLUSION

Forgotten Worlds is another horizontally-scrolling shoot-em-up. However, it's one of the best US Gold have produced and with large, well-drawn sprites making up the different characters it quickly becomes an intriguing challenge.

It could be faster at times but it's still brilliantly addictive. Mastering the joystick movement can become annoying particularly if you're used to the more common 'hold down the fire button' shoot-em-up.

As part of our giant competition issue, US Gold are offering copies of the game and T-shirts. All you need to do is send us the name of US Gold's No. 1 hit last Christmas. The first 20 twenty entries opened receive copies of the game and the next five will get their hands on a *Forgotten Worlds* T-shirt. Just send your entries to US GOLD COMPETITION at our usual address.

Mark Higham

FORGOTTEN WORLDS

US GOLD

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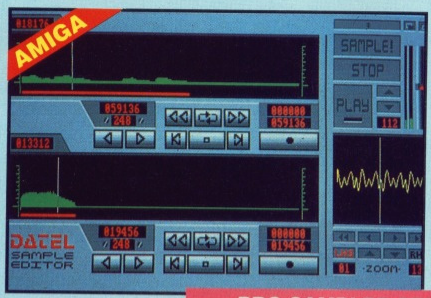

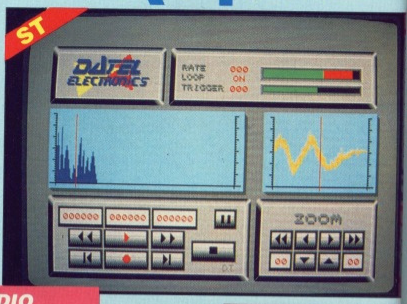

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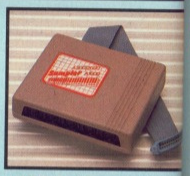

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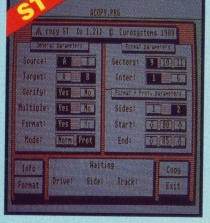

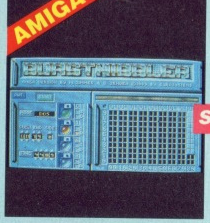

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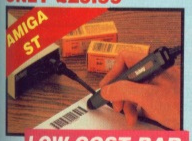

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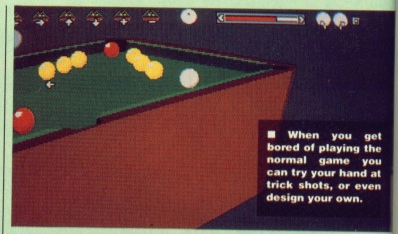
3D POOL

FIREBIRD

Pool has always been a favourite game to play in the pub, especially when you've got a pint handy to keep your throat greased. Computerised pool games have been around for a very long time, but this is the first time that you can play in 3D. Unfortunately this computerised version doesn't come with a pub built around so you'll have to settle for just playing the game instead.

The game is endorsed by the current European and UK champion 'Maltese' Joe Barbara and if you're good enough you'll get to meet a computerised equivalent of Joe in the final. Before you take on Joe you have to battle your way through the quarter and semi-finals in which you meet opponents of varying skill. Each match is played out of three frames with the winner of the three going on to the next stage of the competition.

All other pool games are viewed from overhead and so movement around the table is unnecessary, but in *3D Pool* it's essential. Not only can you move all around the table, but you can also zoom in and out and view the table from different vertical angles. The zoom feature is useful for planning those tricky shots. Change of angle also helps in lining up shots. As usual spin can be applied to any part of the ball and the power of the shot altered.

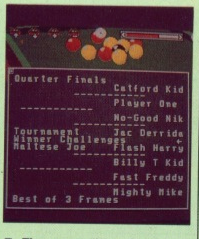


■ When you get bored of playing the normal game you can try your hand at trick shots, or even design your own.

EFFECTS

If it wasn't for the 3D graphics then this would be just another pool game. Being able to view the table from any angle and the 3D perpective does make the difference though. The 3D is done very well and you can even see the light shining off the balls. Thanks to the 3D effect lining up shots is simple, although it take a few games of practice to judge the angles correctly. You get all the sound of the real thing, with the exception of the drunks shouting advice. By the real thing I mean the balls bump into each other. There are no tunes either which is unusual – most pool games have the music from The Sting playing at least some of the time.

■ Lining up for a shot couldn't be easier, you can view the table from any angle and if need be you can even zoom in for that extra bit of accuracy.



■ The competition is played over three rounds with a confrontation with 'Maltese' Joe Barbara in the final.

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OVERALL 71%

CONCLUSION

Pool and snooker are games that require lots of hand-eye co-ordination when played on a table, but with a computer it's merely a task of lining the ball up using your eye and applying spin to exactly where you want and power according to a sliding scale. This takes away some of the skill required and removes a large portion of the fun.

3D Pool is better than most as you can see the table as a player would, but it's just not the same as playing against a potential Steve Davis in a dark and smokey room, the atmosphere's not there. That doesn't stop it from being an excellent game however and being able to play against another person keeps the interest level going when you've beaten all of the computer opponents, but it still loses out to the real thing in the long term.

3D Pool does have one major advantage over a normal pool table: it fits on your desk.

Gary Barrett

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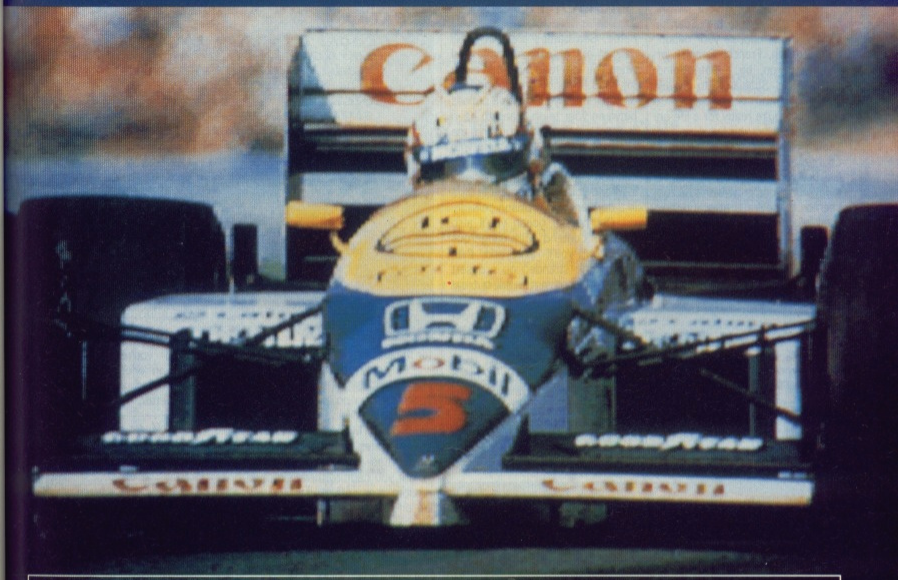


If you're crazy about cars then don't miss our fabulous competition to win a day out at Brands Hatch, courtesy of Entertainment International. Just answer the questions below, drop them in a post box and you could win one of five pairs of tickets to a Formula 3 race.

Entertainment International were responsible for the brilliantly addictive *Crazy Cars* and now it's your turn to sample life in the fast lane with these prizes. EI are offering five pairs of tickets to the Formula 3 race at Brands Hatch scheduled for September 10. In addition, you can go down to the pits and meet the drivers as part of a special deal arranged by EI.

Five second prize winners will receive one of the wacky joysticks currently being sold by EI. They're shaped like a steering wheel and with fast response and a brilliant feel, will make any game frighteningly realistic. Twenty third prize winners can get their mits on copies of *Crazy Cars II*.

So why not answer the questions below and send your answers on a postcard or the back of a cigarette packet to: FORMAT CRAZY CARS COMPETITION, ST AMIGA FORMAT, FUTURE PUBLISHING, 4 QUEEN STREET, BATH, BA1 1EJ. Please remember to write the name of your computer and your age on the card. The first 30 prize winners will be pulled from a hat on July 13 so no other entries can be received after then.

RULES

1. Competition entries must be received by July 13. Any received after this date will be torn into a million pieces and fed to our disk editor.

2. Employees of Future Publishing and Entertainment International may not enter. Not even the boss.

3. The editor's decision is final and no correspondence will be entered into.

QUESTIONS

What make of car was the popular *Crazy Cars II* vehicle modelled on?

The *Crazy Cars II* game sees you racing against an endless number of super-fast enemies, who are they?

In which issue of *ST Amiga Format* was *Crazy Cars II* reviewed?

Apart from Brands Hatch, which other British race tracks host Grand Prix?

PIRATES

MICROPROSE

It seemed appropriate to review a game in which you're a pirate in the same issue that there's a feature on software piracy. Don your pirate's hat, run up the Jolly Roger, inflate your parrot and strap on your wooden leg for a voyage into the seventeenth century.

Before you begin your swash-buckling career on the Spanish Main you can choose your nationality: English, French, Spanish or Dutch. Go on, be a patriot and send those Spaniards to Davey Jones' locker.

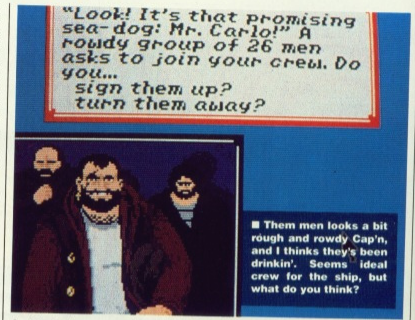
Once you're ready for a life on the ocean wave you leave port in search of adventure. You could of course be an honest trader and live out your sailing life in relative safety, but your crew won't be too keen on it, they're pirates and they want plunder.

■ **Ship ho, Cap'n Carlo! Shall we goes over and 'ave a look or sails away into the sunset?**

A lot of time is spent sailing around the ocean waiting the look-out to yell 'Ship ho'. Once he has you can move in closer and if you think you can handle it go in for battle. Sea battles are first of all carried out at cannon range and when you feel ready you can close for hand to hand combat and leap onto the enemy ship with a cutlass between your teeth. Hand to hand is resolved between you and the enemy cap'n in a simple fight with your trusty cutlass. Win and you can add another ship to your fleet, lose and you'll spend some in time in a dark and dingy prison cell.

Out on the ocean you'll also have to contend with dangerous reefs, or you'll sink and then spend time stranded on a desert island with nothing to do, but eat fruit, lie in the sun and learn to speak the local native dialect (sounds pretty good to me, where is this island?).

There are times when you'll meet some unsavoury looking pirates with bits of treasure maps to sell, which may or may not be genuine. They're always worth checking out though because it's a damn sight easier to dig a hole than it is to capture a ship or town for the loot.



■ **Them men looks a bit rough and rowdy Cap'n, and I thinks they's been drinkin'. Seems ideal crew for the ship, but what do you think?**

As play progresses you'll come across information about your family, who seem to have been captured and sent all over the Spanish Main. There are also some pirates out there that are worth more than their weight in gold if you capture them and then ransom them off. And of course life on the high seas just wouldn't be complete without some romance and some of the governor's daughters are very pretty.

EFFECTS

Pirates is a strategy game and as such sound is often the last thing that's added. Sound effects are simple explosions, but there are a multitude of tunes with a definite 17th century feel. When you're sailing around and in battle the graphics are small and uninspiring. When you're in port or encounter an enemy vessel you see an animated picture and they are much better.

ST – Mouse. £24.99

Amiga – Due in October

STILLS
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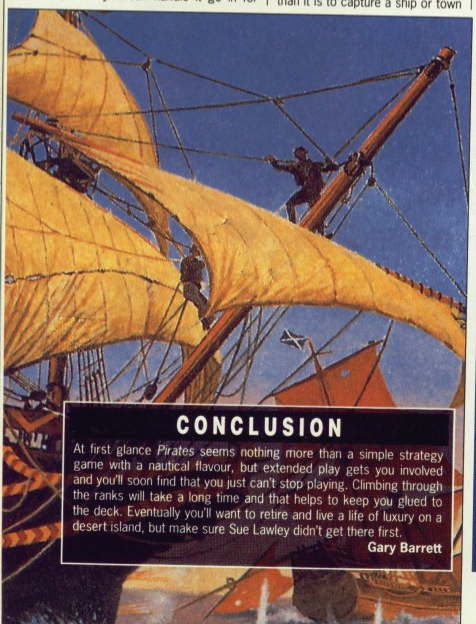
ANIMATION
0 1 2 3 4 5

SOUNDTRACK
0 1 2 3 4 5

LASTING INTEREST
0 1 2 3 4 5

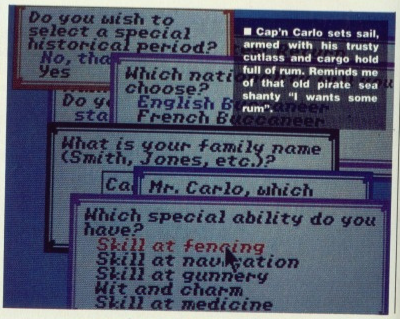
OVERALL 74%



CONCLUSION

At first glance *Pirates* seems nothing more than a simple strategy game with a nautical flavour, but extended play gets you involved and you'll soon find that you just can't stop playing. Climbing through the ranks will take a long time and that helps to keep you glued to the deck. Eventually you'll want to retire and live a life of luxury on a desert island, but make sure Sue Lawley didn't get there first.

Gary Barrett



■ **Cap'n Carlo sets sail, armed with his trusty cutlass and cargo hold full of rum. Reminds me of that old pirate sea shanty "I wants some rum".**

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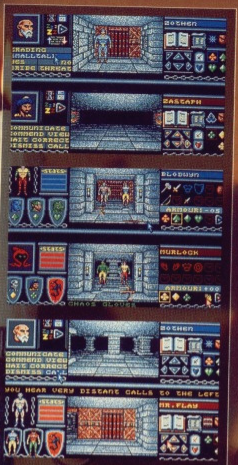


■ The aim of *Bloodwych* is to wander around a castle with five towers – four outer towers and one central one – and search for four magical crystals which must be collected in sequence. These are then taken to the fifth tower where a megalomaniac wizard called Zendig lives. He must be defeated using the crystal.

A GAME OF TAG

Celebrated eight-bit programmers, the Taglioni Brothers, have made their first move into 16-bit with Bloodwych. *MARK HIGHAM went to meet them.*

Did you know this was the airfield where Douglas Bader had his legs blasted off?" asked Tag, squinting into the uncharacteristically hot sun of a Reading morning.

"Yes," muttered a voice from the background.

"Now one thing I must say is that you have to mention Mirrorsoft and what a good company it is," instantly responded Mirrorsoft's PR woman, Cathy Campos, who had come along to watch.

"Mirrorsoft is a good company," responded Tag sincerely, cueing a string of jokes about the magic of Mirrorsoft.

The Taglioni Brothers have been in the programming industry for longer than most. Previously their career has been focused very much on the eight-bit scene and *Bloodwych* is their first product to make it onto the 16-bit market. The likes of *Red LED* and *Greyfell* had emerged from the Starlight stable which was masterminded by the Taglionis and survived right up until early last year. That was when *Bloodwych* was first conceived.

The game is Mirrorsoft's follow-up to *Dungeon Master* offering a fantasy strategy game in the Dungeons and Dragons vein. *Dungeon Master* was Mirrorsoft's major moneyspinner, programmed for the ST by FTL and recently released on the Amiga. Where *Bloodwych* steers away from *Dungeon Master* is in its two-player option. Two characters can be directed around the castle each observed from one half of the screen. Being a completely interactive environment, they can meet each other along the way and confront identical obstacles.

It was this novel idea for the game which first inspired Mirrorsoft to look seriously at *Crystal Quest*, as it was then known, and consider taking on the project way back in March 1988.

"We initially designed the game around the 3D aspect before we went two-player," explained Tag quietly. "The game was Pete's idea." Pete is Tag's brother. "We felt it was an unusual idea and wanted to do it, so we went to Mirrorsoft's Peter Billotta and John Cooke to talk it over."

Red LED was a strategy game which was extremely well received and although *Bloodwych* explores a totally different terrain it's still the strategy vein which seems to be Tag's strong point. He was kicked out of university for indulging in Dungeons & Dragons so much that his grades nose dived into oblivion but it's a background which has stood him in good stead for this latest project.

"We usually spend about as long thinking about what we're going to produce as we do actually working on it," offered Tag when asked to trace the whole design process from the beginning.

"I generally dream up the ideas and then he works on them and legitimises them," said Pete, nodding towards his brother.

"Yes. He came up with some graphics first of all and we used the limited animation available in Degas *Elite* to see if it was still feasible. If it is then I code it."

"I usually just write sections and then insert them into a main control routine. It takes a lot longer than you might think. We started *Bloodwych* with some definite ideas but it just kept growing and growing as we strived all the time to keep it intuitive.

"There's a communication system in the game and it was getting bigger all the time in order to accommodate sub-headings for each menu option and then I took it and showed it to my wife. Her first question was 'How do I ask him his name' and I hadn't included that at all.

"The game becomes an obsession," confessed Tag. "Although it's still easy to become distracted which is why we have deadlines. Sometimes things over-run but we tend to work on a day to day basis. I usually think to myself 'I'll get this lot done today' and I try to get it done before collapsing. I find that I go to bed tired and wake up less tired, then work until I get tired again. This usually means working mid-morning until mid-morning. Luckily I can manage with just two or three hours sleep then I crash out for a couple of days.

"Programming is an art form but there's also a lot of junk written. It's nice when you see a quality product such as *Bard's Tale*, *Dungeon Master* and a lot of the Cinemaware stuff – the quality just comes out of the screen at you. But you get so many games and you load them up then switch them off again and never go back to them," commented Tag.

"I can imagine people putting together something which could survive as an art form. But, after all, these are just games. People's imagination will have changed in two or three years' time and they will be forgotten.

"I used to play chess and sometimes you play serious matches but other times you play just to watch someone else. In that sense programming is an art form."

Original motorbike games are nearly as rare as a genuine case of yuppie flu but they can be addictive and fun. Microprose's latest game is *RVF*, firmly in the mould of the motorcycle game but this time boasting a host of extras to add that elusive spark of competitive spirit.

The game is arranged as a competition against other motorcyclists and the tracks included are as near realistic as possible. Assen in Holland and Brands Hatch are just some of the notorious tracks which have been included. The objective is, as ever, to beat your opponents and although they tear off into oblivion at the start of the race, it's not impossible to come at least somewhere in the ratings which are produced at the end of each race.

Eight opponents are listed at the top of the screen with a red marker indicating your location in this merry bunch. This type of display keeps you on the edge of your chair throughout the game, especially when those vital seconds start affecting your chances.

EFFECTS

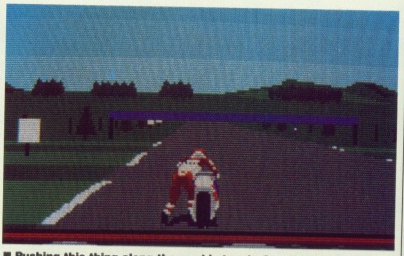
With this type of road-racing game, it's the crash routines which you'll see most often. Short of a vast spillage of blood and guts, these have been executed adequately. Your character leaps into the air after a crash and then tumbles into the grass. His next trick is to run along the road, pushing his bike before eventually climbing back on again. One fall from your bike and you stand no chance of winning the race.

The motorcycle graphics are fairly impressive but the roadside sprites are nothing to rave about. Unfortunately the trees look like the green lollipops nobody likes and the roadside signs are little better. Crashing into them also tends to be very much a hit and miss – sometimes they'll just sail blindly past but at other points you crash into them and shoot straight into the sky.

The sound is effective, with a kind of diesel chug to it but the increase through six gear changes is portrayed with perfect sound effects It's here that the real impression of speed is given.

ST – Joystick. £19.99

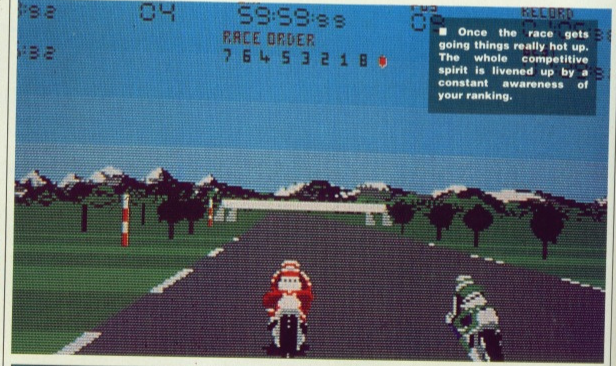
Amiga – Imminent



■ **Pushing this thing along the road is tough. One fall from your bike and you stand little chance of winning – just like the real thing. These type of extras make *RVF* unusual and exciting.**

RVF

MICROSTYLE



■ **Once the race gets going things really hot up. The whole competitive spirit is livened up by a constant awareness of your ranking.**

■ **A typical race. Suddenly the flag goes down and you're left standing at the start. When *RV F* begins you have to get just the right revs – too high and the bike wheelies out of control, too low and you get nowhere. Brilliantly realistic.**

CONCLUSION

RVF is far from being original but it plays well. The twists and turns in the road are violent enough to make sure that you're changing gears all the time which is a definite improvement on the likes of *Super Cycle* where you could race around the course in top gear. With backing from Honda and based around an RVF Formula One bike it feels realistic and the game definately benefits from this.

However, it lacks the graphical quality which makes ST and Amiga games so enticing and after a while, even with a vast number of different tracks, it becomes tedious. However, if you're looking for a motorcycle game then the whole competitive atmosphere and the attention to factual accuracy makes this one of the best.

Mark Higham

STILLS 0 1 2 3 4 5

ANIMATION 0 1 2 3 4 5

SOUNDTRACK 0 1 2 3 4 5

LASTING INTEREST 0 1 2 3 4 5

OVERALL 68%

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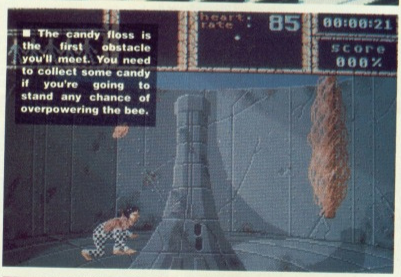
WEIRD DREAMS

FORMAT GOLD

RAINBIRD


■ The candy floss is the first obstacle you'll meet. You need to collect some candy if you're going to stand any chance of overpowering the bee.
heart rate : 85
00:00:21
score
000%

■ The rose garden boasts some vicious flowers. (inset) Complete these and you meet a knife-wielding child. Call this a game?
heart rate : 75
00:01:53
score
000%

It's well weird. Drifting off to sleep is one thing but waking up in the middle of a confused landscape where all sorts of animal and plant life sets out to attack you is altogether another. It's a bit like falling asleep just before the Government came into power and re-awakening to mass unemployment.

AIM

The game sees you lying comatose in a hospital bed, drifting helplessly into the surreal world of your subconscious. In this world anything is possible. The game is arranged as a set of puzzles where the only objective is to stay alive just long enough to wake up again.

The game is arranged around a hall of mirrors where doors lead off to each of five separate puzzles. Only three of these can be accessed at first, the others become available later when the first have been completed. Those available can be accessed in any order.

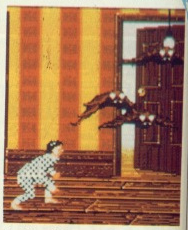
STRATEGY

The game opens with a visit to the candy machine. You must pick up some of the candy and then leap to meet the stick. The stick can be dodged as it spins around but if you miss it for too long then it becomes covered in candy and the only way out is to lose one of your five lives.

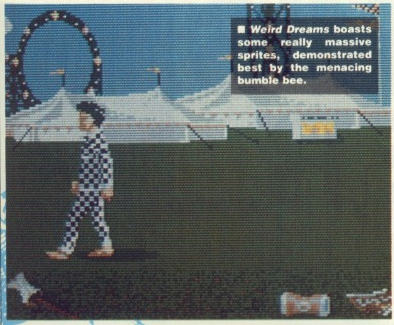
If you survive this then the next step is to confront the bumble bee by depositing your ball of candy and trying to retrieve the orb held by the bee. Orbs play an important role in the game. The objective of each room is to pick up the orb and then return back to the hall of mirrors. The game features five different rooms with an obstacle behind each. The first room deals with the candy floss and bumble bee, then there's the desert where you have to leap up and catch flying fish and then stab the long-necked monster. The third room takes you into a garden where deadly roses threaten to bite your head off and an evil knife-endowed little girl plays a vicious game of ball with you. The fourth room sees you in a scene where you must leap across the keys of a piano and come to blows with a ballerina. In the final level you're returned to the desert where you confront more unlikely foes and finally find out why you had to collect the orbs.

EFFECTS

Visual effects in *Weird Dreams* are stunning. Not only has great attention been paid to the massive game sprites but even the space between levels has been filled beautifully with a view from the operating table of a group of masked doctors all ready to slice you in two with a scalpel. Game graphics are faultless. Everything from the trip across the piano keys to the brief visit inside the candy machine has been carefully animated to keep the action smooth and enticing. Even the opera singer on the final puzzle



■ **Play too much of *Weird Dreams* and you'll end up batty. This level is reached from the hall of mirrors.**



■ *Weird Dreams* boasts some really massive sprites, demonstrated best by the menacing bumble bee.

actually succeeds in looking like an opera singer.

With attention paid to the graphics, games are often let down by a poor soundtrack. Even in this case, the addition of a few brief bouts of sampled sound would have improved the whole thing but at least the spot effects on offer successfully reinforce the surreal effect inherent in *Weird Dreams*.

ST – Joystick. £24.99

Amiga – Imminent

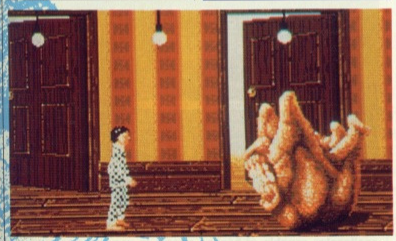
STILLS 0 1 2 3 4 5

ANIMATION 0 1 2 3 4 5

SOUNDTRACK 0 1 2 3 4 5

LASTING INTEREST 0 1 2 3 4 5

OVERALL 81 %



■ The hall of mirrors is where you return after each challenge. The separate doors then offer a pathway to the relevant level.

CONCLUSION

Without doubt, *Weird Dreams* is an original and cleverly executed game. The graphics are faultless and movement is so smooth that the game just oozes with confidence. However, a ridiculously long wait between lives and potentially short levels do very little to sustain interest over any long period of time. Since levels can often be over in a matter of seconds, particularly when you approach the game for the first time, this is not just a minor upset but a major frustration.

The problems in the different levels are enticing but they lack the kind of depth which would have made them more thrilling. However, once you begin to master the different challenges you can soon begin to overcome any problems in this area, as the game suddenly becomes more addictive. It's doubtful whether the addiction level will ever rival that of a shoot-em-up but *Weird Dreams* is striking and unusual enough to see you delving into a world of living nightmares over and over again.

Mark Higham

SAVAGE

RAINBIRD

Love has caused more wars and grief than anything else in history (except maybe religion) and it has been the background for as many computer games as the earth being threatened by alien invaders. So yet again love is the problem for that hunky brute Savage, whose missus has been kidnapped and locked away in a dark and dingy castle dungeon.

There are three games which load separately and passwords are needed to access the two later levels. Levels two and three can be played without passwords, but you only have one life.

Level one is a run-around-and-kill-everything-in-sight game which sees you hurling axes at those naughty little monsters who just can't wait to sink their fangs into you. Occasionally you come across a big, mean and nasty guardian, and these take a hall of a lot of killing. If you manage to fight your way to the end of the level you'll be given a password for level two.

In the second level you wander across the valley of death and have to avoid the huge and ugly monoliths. Yet again there are hordes of monsters out to get you, but fortunately they can be despatched with a blast of good old fashioned magic.

After defeating several waves of bad guys you get the final password and arrive at another entrance to the castle, which is high above your head. Not being the sort of person that gives up easily you send your faithful, feathery friend, Eddie the Eagle (bird of prey, not man of skiing). With a bit of a flap it's time to rescue your true love and beat up yet more of those lil' ol' demons.

The music in *Savage* is mediocre and the sound effects are little better. Graphically it's nothing special either, there's plenty of colour and animation is good, but there's nothing to make it leap out at you and make you say "Wow!".

Savage unfortunately lacks that essential quality which makes an awesome game and you're left feeling that you've one in your hands which you'll play for a while, but will soon tire of. Not up to the standards expected of Rainbird.

Gary Barrett

STILLS 3.5

ANIMATION 3.0

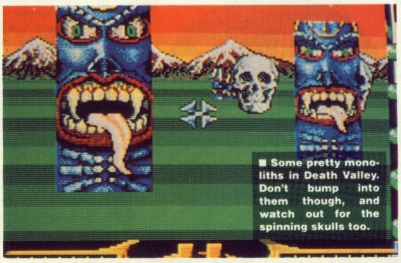
SOUNDTRACK 2.5

LASTING INTEREST 2.5

OVERALL 61%

ST – Joystick. £24.99

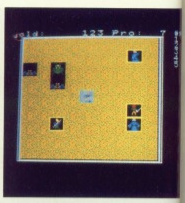
Amiga – Imminent



■ Some pretty monoliths in Death Valley. Don't bump into them though, and watch out for the spinning skulls too.

DEMON'S WINTER

SSI/US GOLD

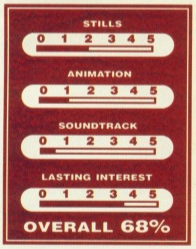


■ **Hostile foes surround you. Use steel and magic to eradicate your opponents.**

You'll never complain about the English weather again For soon all the land will be covered with snow and the oceans will turn to blood, unless – can you guess? – a band of valiant adventurers can save the world from its terrible fate.

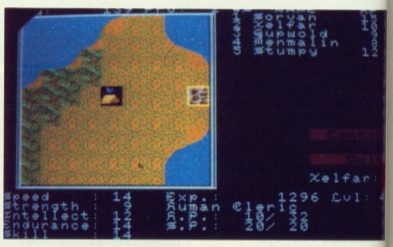
The demon god Malifon (whats in a name ?) lies trapped in the heart of a volcano where even now his power is growing. Minions of Malifon travel the world causing death and destruction as they work on the task of releaseing their god.

Amiga – Mouse/keys. £24.99
ST – £24.99. Imminent

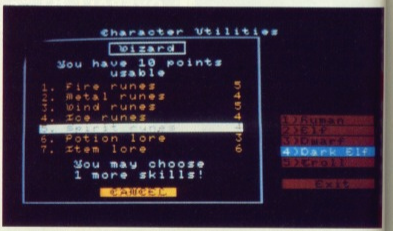


Before you begin on your quest to save the world you need to create a party of adventurers. Up to five can begin the quest and you can choose any one of five races: dwarf, elf, dark elf, troll or human, and 10 character classes: ranger, paladin, barbarian, monk, cleric, thief, wizard, sorcerer, visionary and scholar. After you've chosen the race and class of the character you can choose two skills for it. Make sure that at least one character has the Spirit Runes spells, because they can be used to heal your characters. A priest is useful too as they can destroy undead using the power of their deity to strike them down, saving you from having to go in and fight them hand to bony hand.

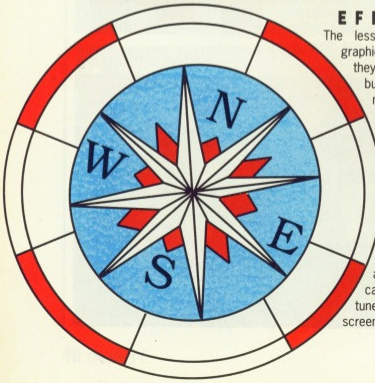
Now that you have your band of adventurers it's time to explore the world and seek the means to bind Malifon in the volcano for all eternity. The world is filled with dangerous foes to fight and as you explore you'll gain in experience which will enable you to improve in combat and magical skills. Eventually you'll be able to buy a ship and then explore the oceans and reach far off lands. Malifon and his minions await your band, and they will stop at nothing to defeat you.



■ **Your party of heroes explore the world looking for excitement, adventure and really wild things. A long list of options sits to right of the map with which you control the adventurers.**



■ **An important part of the game is character creation, choosing the right balance of martial and magical skills is important. Having the spellcaster capable of healing people is very important, so make sure that at least one of your wizards has the Spirit Runes list in his repertoire.**



EFFECTS

The less said about the graphics the better really, they're colourful alright, but small, poorly animated and lacking in detail. The world graphics are very simple, in fact the whole game looks extremely eight-bit and the sound is just as bad with ineffective effects and an absolutely diabolically awful signature tune on the title screen.

CONCLUSION

The label of role playing game has been applied to many games in the past, and the majority are just hack and slay games with no thought involved at all. *Dungeon Master* was called a role playing game, but was just a hack-em-up with pretty graphics. *The Bards Tale* is closer to role playing with more than just simple puzzles to solve, there was some plot and more challenging mental conundrums to deal with. *Demons' Winter* takes a step forward along the role playing lines with the multitude of options available to you and the more realistic combat in which you have much more control. Tactics can used properly for a change. Unfortunately so much has been done to make the game play well that the appearance has fallen by the wayside, it looks and sounds awful which is a terrible shame, because *Demon's Winter* is one of the best computer role playing games to date. SSI are still at the head of the field when it comes computer role playing and they look likely to stay there.

Gary Barrett

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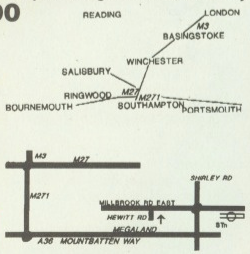

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MEGALAND 42-44 MILLBROOK ROAD EAST SOUTHAMPTON

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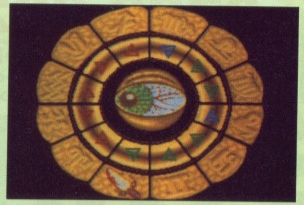


■ The eye of infinity surrounded by the 12 signs of the zodiac. Scorpio is the easiest to complete and Sagittarius the most difficult. Each sign is colour coded green, red or blue.

WIC

ACTIVISION

■ A star map of the constellation appears after you've chosen one and the three stars to be conquered pulsate. Chose a star and let the battle commence.

■ In Scorpio your task is simple, it's more of an introduction to the game than anything else. Only two evil portals to be destroyed which should prove to be no problem.

Signs of the zodiac, tarot cards and computers may seem an odd combination, but all come together in Activision's latest game, *Wicked*. Good and evil are having their usual disagreement and want to eradicate each other.

AIM

The sun and moon are two opposing forces and you're an avatar of the sun on a quest to defeat the evil minions of the moon. Defeat the moon and gain eternal glory, fail and lose your soul.

STRATEGY

The action takes place in the 12 zodiacal constellations from Scorpio to Sagittarius. In each constellation there are three stars in which the evil of the moon is trying to gain influence.

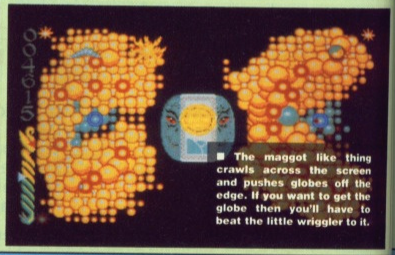
The evil is spreading in the form of a viral growth which slowly creeps all over the screen. At the centre of the growth is a portal from which the infection comes. Occasionally the portal produces a spore which if left alone for too long flies off around the screen creating a new portal. To stop the evil growth from spreading to cover the entire screen you have to cover all of the evil portals with good and wholesome growth. Good growth however can't

COMPETITION

Binary Design are the people behind *Wicked* and consist of Paul Norris and Rupert Bowater. They both took part in the game design, but Paul is the one who did the actual programming over a period of 18 months.

It was written using the Mirage development system which runs on a Mega ST. The code was then ported across to either the ST or Amiga. Graphics were designed using *Degas Elite* (ST) and *Photon Paint* (Amiga).

Not wanting to be left out our competition birthday issue Activision are giving away 20 *Wicked* T-shirts and five copies of the game. All you have to do to win is write down which sign of the zodiac begins on the June 21.Send your answers on the back of a postcard to WICKED COMPETITION at our usual address, not forgetting to say which machine you own.



■ The maggot like thing crawls across the screen and pushes globes off the edge. If you want to get the globe then you'll have to beat the little wriggler to it.

GRAND MONST

RAINBOW ARTS

■ Kick three more Beloms up the pitch and then run for the opponents line to win the contest.

Getting your head kicked in takes on a whole new meaning if you happen to be a Belom, because all you are is a furry head.

You don't get your head kicked in, however, you do the kicking instead. The action takes place on a grassy pitch with you and your opponent standing at opposite ends of the playing field. In front of each of you is a row of quivering Beloms waiting to be kicked. The idea of the game is simple, kick those Beloms to the other end of the pitch and then sprint to the opposing line. Reach the line and you go onto the next round of the game and if you're good enough you'll eventually reach the final. Your opponent of course has other plans because no one likes losing, not even a stupid ogre, and he kicks the Beloms back. You represent the stumpy people (dwarves) and must kick your way to victory

In the first round of the contest you play through against seven other opponents in a knock-

CKED

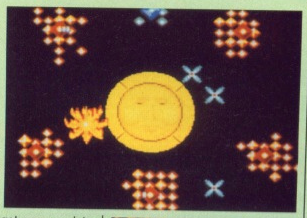
smother evil and so a path must be cleared to the evil portals and that's where you come in.

You travel around the screen destroying the evil growths with a blast of fiery energy and clearing a pathway for good growth to the portal. Your own portals also sprout spores which you must carry away and deposit on your own growth so that a new portal can be created.

Minions of the moon guard each star and do their utmost to destroy you. Unfortunately you can only fight back during the day time which is indicated by a golden sun in the centre of the screen. During the night the hideous face of the moon is depicted instead.

Once during each day and night the sun or moon splits asunder and a small sphere is released. At the same time a tarot card is shown which gives a clue to what the sphere does if you collect it. There are eight tarot cards some beneficial and others hazardous, after a few games you'll know what each of the cards means and which to collect or avoid.

To win the game you must be victorious in the battle for the constellation of Sagittarius, but you have to fight through at least three other constellations before you can get there. It's best to start with Scorpio to get you used to the control and tarot cards.



■ During the day you can fight back against your evil enemies under the watchful eye of your ally the sun.

EFFECTS

Sound is one thing that *Wicked* isn't short of, an ominous tune plays before each game and a happier one if you win the battle for a constellation. There's also a more demonic tune when you lose. Sound effects are excellent with a great crunching sound as the moon eats your soul. The only criticism that can be levelled at the graphics is the size of the spores, they're small and on a screen covered with growth they're very difficult to spot, fortunately you do get an audible warning when one appears which makes them a little easier to find.

■ Once each day and night the moon or sun parts and reveals a tarot card. A small sphere also appears which has the effect of the tarot card, for good or evil.

ST – Joystick. £19.99

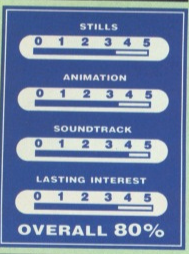
Amiga – Imminent

■ During the night the hideous face of the moon is visible and his minions can't be harmed.

CONCLUSION

Wicked is a weird game, it combines strategy and arcade action with tarot and astrology to produce an incredibly addictive game, for a while. There are three styles of game that you can play: tactical bias, standard mix and arcade bias, which cater for most players, but in the long term you may well get bored of just shooting growth. Actually completing the game will take a long time because on later constellations there are hordes of evil portals and the computer plays much more intelligently. If you do eventually win you're unlikely to play again, but you might still load it up occasionally to listen to the music. Thoroughly enjoyable and with plenty of occult references – what more could you want from a game?

Gary Barrett



TER SLAM

out contest, the winner of each match goes onto the next stage until you reach the round one final. After each match the Belomes can get their own back in a bonus round. Here you just fend off the Belomes for as long as possible. Win the final and you get to feed the Faultons.

Faulton feeding involves kicking Belomes into the waiting mouths of the Faulton who sit atop pedastles. If you get enough hits you go onto the next stage where you must defeat increasingly skilled opponents. The last thing you do to become GMS champion is beat the winners of three previous GMS Tournaments.

Graphics in *GMS* are cute and humorous with plenty of detailed opponents. The little Belomes in particular look good, shivering in anticipation of being kicked in the face.

Sound effects during the game consist entirely of kicks and thuds and cheers from the crowd. There are some very good tunes, on the selection screens but nothing appears during the game itself.

■ The first round has some meanopponents and games are played on a knockout basis.

CONCLUSION

Grand Monster Slam suffers in one important area: lasting interest. Game play is very repetitive, just kicking heads and playing one of the two intermediate stages. If there had been just a bit more thought put into gameplay then this would have been an excellent game, but lack of variation just leaves you bored after a few games. In fact you'll get more long term satisfaction from painting the free goblin. supplied with the game.

Gary Barrett

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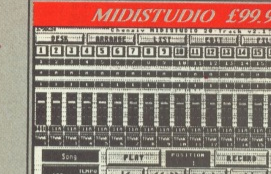

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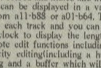

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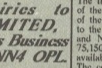

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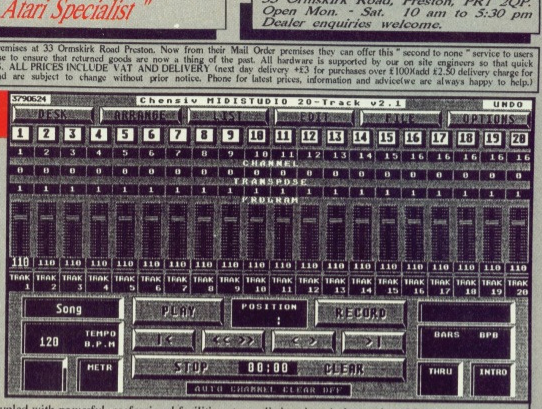

- Tracks - Solo/ Mute /Normal playback modes for each track.
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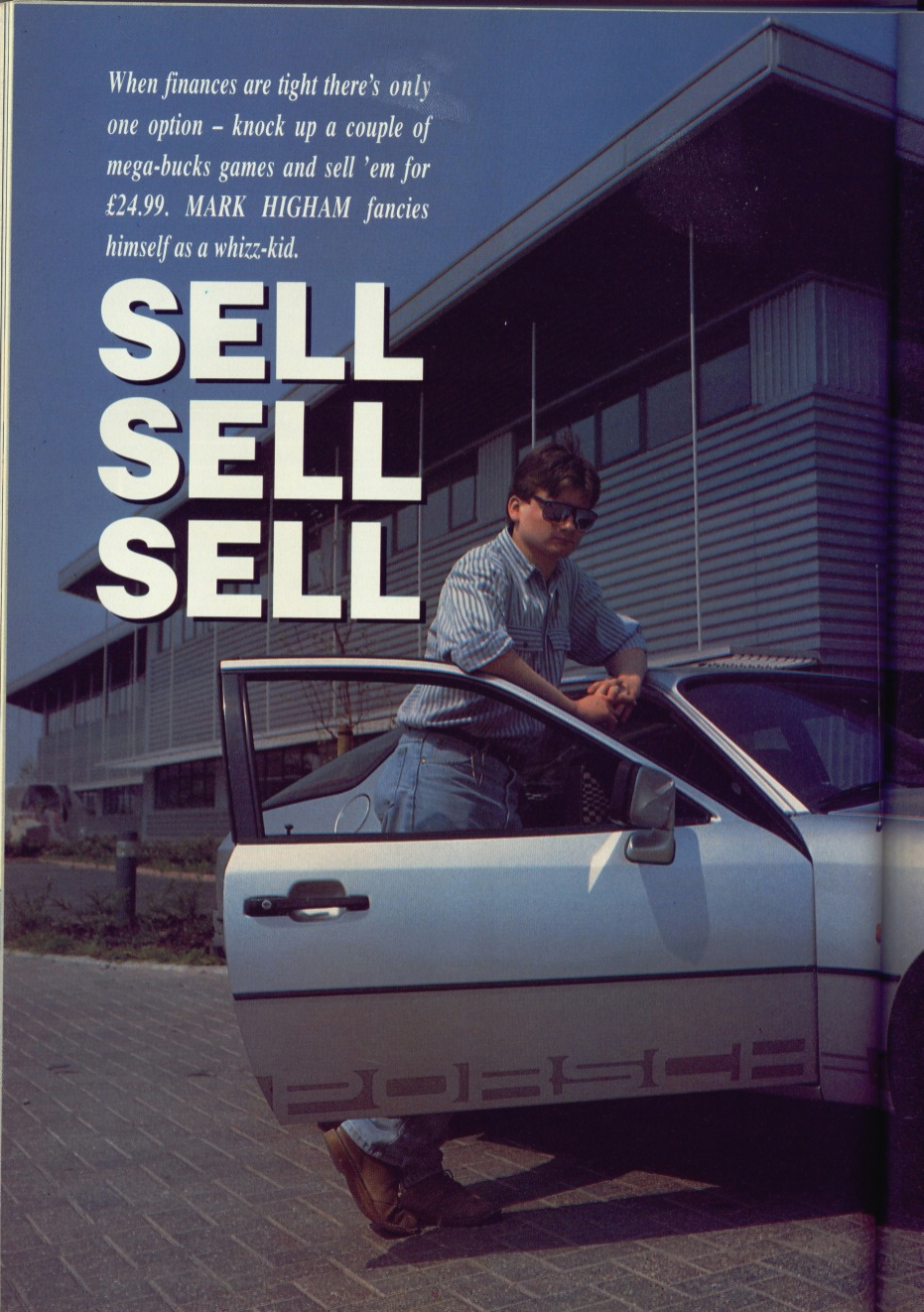
When finances are tight there's only one option – knock up a couple of mega-bucks games and sell 'em for £24.99. MARK HIGHAM fancies himself as a whizz-kid.

SELL SELL SELL



Take one enthusiastic young person, a computer studies course and a new computer and what do you have? An instant programmer. And what do programmers do? Earn lots and lots of money of course. From all the adverts which litter computer magazines begging for programmers, it would be fair to assume that they're really in demand. Many of the adverts promise riches of thousands of pounds as well as a sizeable chunk from royalties on the game.

So, you want to get rich quick. How do you to go about marketing a game?

THE IDEA WORKS?

Probably the least painful way to test the water is to work on an original idea and develop it, then take it to a software house and see what they say. It's usually best to send off the idea first and wait for a response from the company. The Taglionis worked this way when they developed *Bloodwych* but it's really only a method used by already established programmers who intend to write the code for the game.

Most companies, particularly Activision and Mirrorsoft, are on the lookout for any original concept. Even if you are not prepared to or capable of writing the final program, the idea may still have potential.

If you really want to approach a software house in this way then it's certainly advisable to take along samples of your work since the company has nothing to prove to them that you're actually capable of writing the software. If they like the idea and think you're able to write the program then a few posh meals later and you'll be well on your way towards signing the contract.

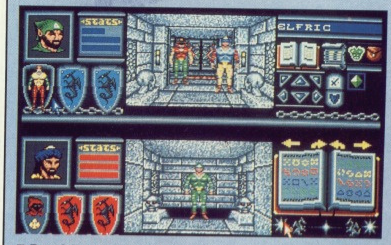
Samples of your work are often an important aspect to finding a role in the games industry. Even samples of good graphic design can prove useful. Entertainment International, being a fairly new software house, is always on the lookout for graphic artists and good slideshow demos are often enough to secure you some notice.

THEN THERE'S WRITING IT

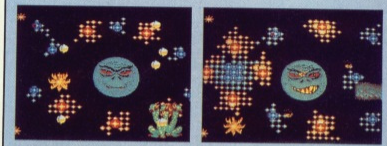
If however, you prefer the more masochistic approach then you can always come up with the idea and start to code it yourself. Remember though that programs can often take a ridiculously long time to code, especially on the 16-bit scene, so it's not a good idea to give up work and start.

This is no way to do a conversion since licences are often acquired by software houses many months before the conversion is announced. If you really want to pursue this idea then the best company to approach has to be US Gold. Samples of your work are imperative and they can usually spot a potential genius.

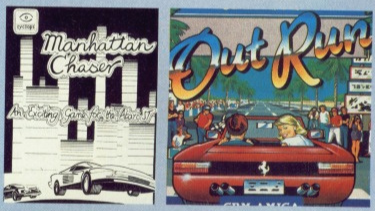
However there's always a market to



■ **Examining the market and history of a company can ensure that you get just the right exposure for a game. Being a fantasy game, *Bloodwych* was taken to Mirrorsoft because it was felt that they knew more about this market than anyone else.**



■ **Activision's recent *Wicked* game, reviewed in this issue, was written by a programming team which took the final product to Activision in the hope that it would be marketed. This just goes to demonstrate the high quality required by the leading software houses.**



■ ***Manhattan Chaser* was written by Cyclops Software, a team of just two people. This was advertised in magazines and was packaged as well as possible but in the end it sold little more than ten copies. Probe Software did however, show some interest, seeing it as a possible contender for their own *Outrun* conversion. In the end it failed.**

■ **Microdeal usually like to see a game and if they see potential in it then they'll make a small initial payment. No other money is paid until the program has been completed and play tested.**

DO IT YOURSELF

There is, of course, an entirely different way to go about selling your game. The very brave can attempt to market the game themselves. The expense in this field can often prove enormous but if the game's a good idea then a few adverts in magazines will soon bring the reviewers and distributors flocking. Even programming houses have spotted potential in a game advertised and sold directly from the programmer. When Probe Software were given the *Outrun* project they found that a small programming team were already struggling to sell copies of a game entitled *Manhattan Chaser*. It was a car game based around the popular coin-op and so Probe Software looked at the coding and the kind of routines used to see if they could be adapted for use in their own *Outrun* project. For a while Probe brandished statements like 'royalties worth £50,000' before it was eventually decided that the game wasn't good enough. This is by no means uncommon.

GET PACKING

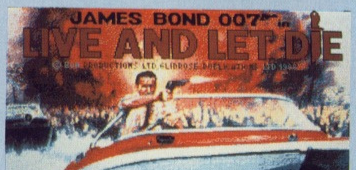
While the coding is still taking place you must start to think about the artwork which will be used on disk labels and packaging. A helpful friend with O-level art can be recruited to assist here, enticed with promises of a percentage of the profits. People prepared to contribute sound effects and graphics are always useful, again brought along with promises of great wealth.

A simple piece of artwork to make up the cover is the best approach. Restrict yourself to one or two colours like red and black otherwise you can step into expensive territory. Alternatively you can use as many colours as you like and take the result to a professional colour photocopier and get the perfect result. This method can be extremely expensive and is only advisable for the first few weeks of sale. This is the crucial time and so it's best to spend as little money as possible until you're assured of orders. Bulk disk purchases of 10 or 20 disks can reduce the cost here and disk copy with your own disk drive at least in the short-term.

AD HOC

One of the most hefty expenses comes in the advertising bill. A half page of space can cost anything up to £300 for just a black and white advert and advertising salesmen will always try to sell you more than you wanted. It's advisable to send copies of your game off to as many magazines as possible for review and hope that it receives some praise. Even with a good review, it's surprising just how few orders appear. You could certainly think you'd done very well if you manage to cover your costs in this way. However, it's certainly a good method of getting noticed. Eager distributors and software houses will often respond to a potentially good idea.

It is an illusion that the software industry is bursting with money. Unless you come up with an original game such as *Populous* or *Archipelagos* then you're unlikely to venture into the mega-bucks league. However, if come up with a good product then you will find a market for it.



■ **Domark have adopted the strangest approach of any software company They will look at nothing at all. Any games sent to them are returned unopened. This might seem like a ridiculous approach but they once rejected a game and then released one which ran along similar lines. The programmer of the first game threatened to take them to court.**

■ ***Legend* is one of CRL's newest releases. It was written by Mundane Software, a team of four people who went through all the problems of marketing the product themselves and then went to CRL who eventually took over the distribution.**

be found out there for original games which have been done carefully enough. Even if the final product is not up to the kind of standard required by today's market, a good idea can often undergo serious revision if the software house sees a market out there. Most will look at a good idea and if the graphics seem to be suffering or the sound effects are not worth much then suggestions can

■ **Entertainment International have been responsible for marketing several games written out of house. Both *Stormtrooper* and *Pipeline* were written by programmers unknown to EI.**

be made or other teams introduced into the project.

Where one of the biggest obstacles appears is in conversion. ST and Amiga games are almost always backed up by the equivalent on their sparring partner, even if the game is only a direct-port so you must be proficient in 'the other side'. Eight-bit versions are also often required, particularly if you are dealing with the larger houses such as Ocean, US Gold, Mirrorsoft or Activision where all formats usually appear at some time. This does not mean that you have to be able to program every computer out there because other programmers will be introduced to cover the versions which you cannot do yourself.

A letter is often a sufficient approach to a software house. It's all very well brandishing a shotgun in some attempt to see the managing director but at the end of the day you'll always be sent away until the software house has passed your game over to a team of play-testers for evaluation.

If a game is not accepted it does not necessarily mean that it was a poor game. Often software houses need to know more about the market before they'll consider tackling it. Even if a software house is prepared to take on your game it's best to do some background research in order to make sure that the game will be marketed to your satisfaction. Electronic Arts and Mirrorsoft have both had considerable success in the adventures market so they are the ones to go for if you have something in this style. They know the market well and have enough experience to make sure that your game can be targetted at precisely the right people. Similarly, US Gold are experts in coin-op conversions and Activision are always on looking for any truly original ideas.

When a software house decides that they want to use your game then they will ask you to a meeting and discuss the kinds of changes they would like to see implemented. You tell them whether it's feasible or not and then out comes the contract. An initial deposit is made if the idea is a good one and the software house is eager to use it. Then they will wait to see progress before making further payments.

Microdeal are not alone in making a small initial payment and then giving no more financial aid until the game is completed. This might sound like an unfair way of operating but many programmers have come across a problem in their code and given up altogether – shooting off to the other end of the country and leaving the software house with a useless product.

Virtually all software houses will at least look at your game. However, few games are good enough. Entertainment International receive around three games a week, all of which are examined. Products which have appeared in this way are *Stormtrooper* and EI's forthcoming release, *Pipeline*. ■

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Level 10 – use a magic zapper as soon as you appear on this level. Activate a power shield and immediately jump towards the man. Hit him once to kill him then jump to the right to finish the level (you will be shown on the stairs). Don't waste any time because you will need the power shield for the next level.

Level 11 – jump towards the massive creature and continue to hit it until it disappears. The power shield should last long enough. Don't panic when you see the wizard because you can actually jump over the energy that he fires.

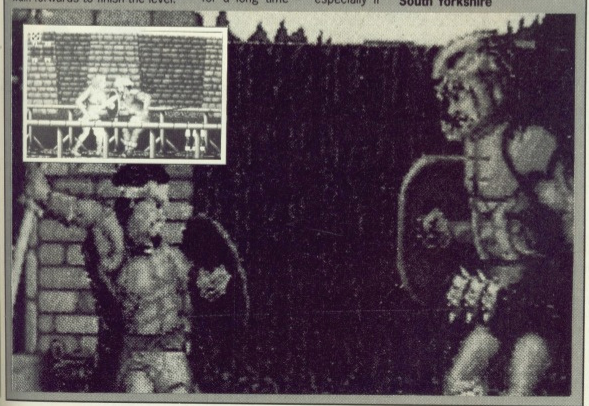
You will have to repeat this for a long time – especially if your remaining hit strength is low.

You should have two magic zappers and a power shield with which to finish off Zoras. When Zor```as goes crazy (you can tell... he fires loads of blue energy bolts at you), activate the power shield and both magic zappers. Walk towards him and continue to hit him – he should only need two or three hits before he dies.

All you have to do now is walk to the right and you can see the end sequence.

Try pressing C, P or HELP during a game to see some hidden messages. Also try putting disk three in at the Workbench prompt to see some details about the program.

Daniel Veron
Doncaster,
South Yorkshire



HOLLYWOOD HIJINX

ST & AMIGA

To open the front door, turn bazooka west, then east, then north. To open the safe in the house turn the dial right three, left seven and right five. Confounded by the maze? Put the thin paper on top of the yellowed paper. Put the cannonball in the cannon and light the fuse. Open the compartment and take the mask.

Sarah Garner
Redditch, Worcs

OPERATION WOLF

AMIGA

Level 1 - Communications
Easy with only 50 troops, four choppers and five tanks. Knock out large groups of troops, tanks and choppers with single grenades. Try to shoot the troops with black berets first as these throw knives which soon deplete your energy level.

Level 2 - Jungle
A little harder this level with 60 troops, eight boats and eight tanks – however, with no knife throwers. At the end of this level the general appears with a girl hostage. Make sure you have at least one full magazine of ammo. Be careful not to hit the girl. Good timing is essential and remember the general has a revolver. You can kill him with about 15 good shots.

Level 3 - Village
Easy this level with only 40 troops, four choppers and three tanks. The only real dangers are the troops with the hand grenades. Take your time and only use gun fire. Try and save your grenades for the next level. Don't worry if you lose a lot of energy because most of your energy is replenishednext level. Pick up as much ammo as possible.

Level 4 - Powder Magazine
This one's got 45 troops, seven choppers and five tanks. Don't hang around on this level. This is where the saved grenades come in useful. Try and clear it as quickly as possible. Watch out for troops with large machine guns as they wear bullet proof vests; only a well placed head shot will waste 'em. Also on this level are shaven headed bazooka troops – shoot these skin heads as soon as they appear. Don't worry about running out of ammo on this level as your ammo is replenished at the end of the stage.

Level 5 - Concentration Camp
Real tough this level with its 75

troops, 12 choppers, knife throwers, grenade throwers and troops with bazookas. And on top of that there are five hostages to rescue. If you don't save all five you will not complete the game. Make sure you don't kill any or let the enemy get near them. Pick up as many grenades and magazines as possible, or shoot birds and pigs when the screen is empty, as you will need as much ammo as possible for the next level.

Level 6 - Airport

With 85 troops, 11 choppers and four tanks you're in for fun. Try and take out as much of the enemy as possible with gun fire. You'll also need to pick up as much ammo as is available for the final chopper. Wait until the chopper fires its grenades and then fire your grenades at the same time.

Bonus Screen

In between some of the levels there are bonus screens. Always fire grenades at the middle choppers and you will have no problems.

Andrew McGarrigle
Mexborough, South Yorkshire

HYBRIS

Amiga

Load the game and wait for the high-scores table to appear. Type COMMANDER and press the fire button to play the game. Press F10 during the game; your ship should glow. This means your ship is invincible and you've got unlimited energy and smart bombs. Press F2 to F6 to get the five different add-ons. F9 advances a level.

Andrew Phang
Australia

ENLIGHTENMENT

Amiga

When you have reached a new or unexplored plane, take out the disk and kill the druid. Instead of returning to the village of Ishmah, you will be returned to the plane that you died on. Insert the disk and start playing again. This tip can be repeated as many times as you want.

There is one problem in doing this however: you lose all the spells that you had before and start the game again with the normal complement of spells: golem, food, key etc. You might not last long on some of the later levels , but at least you can do some exploring for when you try and complete the game the hard way.

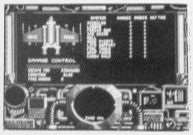
Fauzan Mirza
London

DOUBLE DRAGON

ST

Start a two player game and hold the fire button and down key on both joysticks. Press ESC until the credits go haywire. You now have infinite credits. Go on punk, rescue that girl!

Chris Harding
Amersham



FOFT

ST

Advancement in rank has nothing to do with the amount of credits to your name. Instead it is related to the amount of missions you complete and ships destroyed. The only way to earn credits is to haggle on the trade-net (you get credits for missions, but it would take a long while to amass a fortune). By staying in the space station on the net and trading in guns, food, gold, you will quickly build your fortune.

Travelling to space-stations requires you to jump until you cannot get any further.

To complete missions:

1. Take message: just go there! Use E pod.
2. Destroy aliens, but not unknowns: Kill 4+.Use E pod.
3. Destroy Sat!
4. Escort convoy. Use E pod.
5. Investigate disappearances. Kil 4+. Use E pod.
6. Search for survivors.
7. Escort VIP. Land on planet then go to destination.
8. Go and report.
9. Destroy alien.
10. Rescue civilians. Land on planet.

M Collins
Basildon

DOUBLE YOUR MONEY

From next month onwards things get complicated because instead of one magazine there are two: *ST Format* and *Amiga Format*. So get those tips and pokes written and in the post to *ST Format* (or *Amiga Format*), 4 Queen Street, Bath, Avon BA1 1EJ. Make sure you send the relevant tip to the correct magazine.

This month's winners are:

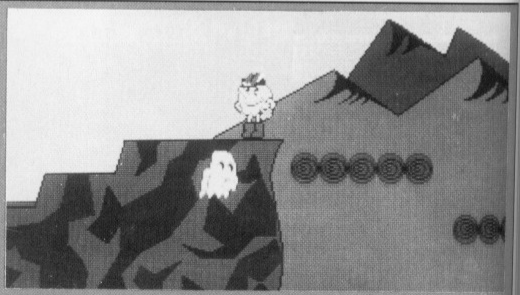
Kevin Ponder, who wins several Amiga goodies, for his excellent *Pacland* hints.

M. Collins provided the *Federation of Free Traders* tips. so some ST software for him.

Their prizes are on the way, courtesy of the GPO.

PACLAND

Amiga



Level 1 – jump on the fire hydrants to reveal cherries. On the third fire hydrant, go to the right then walk against it. Your Pacman will now be wearing a blue cap which means the little ghosts dropped from the planes can now be turned into 200 points on every hit.

Jump over a car coming from the right, wait until it turns around, jump on top of it as it moves to the left and you will find no more ghosts appear on the screen.

To pick up a nice bonus at the end of the level, jump when the E of TIME appears.

Level 2 – jump on top of each cactus to get the cherries. Finish off in the same manner as level 1 to pick up a juicy bonus.

Level 3 – keep your finger on the jump button to reach the end of the logs easily. Run fast at the springboard and jump when you see the springs pressed. Tap the joystick to the right to get over the pool.

Level 4 – just sit back and watch the computer take over

Level 5 and 6 – these are easy with the boots as you go back over the previous two levels. At the end of 4, jump on the last step to get a bonus. At the end of 5, jump when you see the whole of your wife in the picture.

Level 7 – watch out for the double decker buses, but if you do the same car trick as in level 1 you'll have a clear ride. Jump at the end when E appears.

Level 8 – this is all swimming pools. Just wiggle like mad and hope!

Kevin Ponder
Hitchin
Hertfordshire

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SAE FOR CATLOGUE

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PREVIEWS

■ Hewson's latest is *Astaroth*, a medieval arcade adventure which sees you exploring labyrinths and ancient crypts in a bid to accumulate magical treasures. The bewitching graphics have been created by Pete Lyon with Mark Dawson responsible for programming. Astoroth is scheduled for release on the ST in the next few weeks so make sure you catch the review in the first issue of ST Format.

■ Electronic Arts' latest line-up includes *Navy Moves* from the Spanish programming house, Dinamic. The game is split into two levels – the first is a water scene in which you dodge mines and other paraphernalia in a typical Bond-style action adventure. Level two is set inside a maze-like submarine. Dinamic were responsible for *Army Moves* and this latest release looks to be just as difficult to complete.

■ *Sleeping Gods Lie* (shown above) is the first release from Entertainment International's new Empire label, which they're currently promoting heavily. It's an adventure game with the unambitious objective being to meet a God. Along the way you encounter such mystics as the Ferryman – a silent, old man who leads you across the water for a ridiculous fee – and three witches straight out of Macbeth. The game is arranged as a set of levels, each one featuring characters to be overcome using different weaponry accumulated along the way. These levels range from castles to islands.

Sleeping Gods doesn't contain enough graphical appeal to make it a blockbuster, but it's the adventure side of things which matters. And first impressions are of a cracking adventure.

■ That monstrous great white is back to terrorise the waters of Amity Island again. The classic film has made it onto the computer scene as an arcade/strategy adventure game.

SCREAMS FROM SCREEN 7

This month sees the appearance of another new label, Screen 7. A host of new products are lined up for the summer months, the first of which is intended to be a computer simulation of that 1970s classic, Jaws. Screen 7 will be serving all the major eight and 16-bit formats. The 16-bit titles will retail around the £19.95 mark. Screen 7's first release is scheduled for June.

■ The player must overcome all obstacles and dangers in order to construct the steel framework of a huge skyscraper in *High Steel*.

■ The exploits of a mercenary helicopter pilot are explored in *Steiger*.

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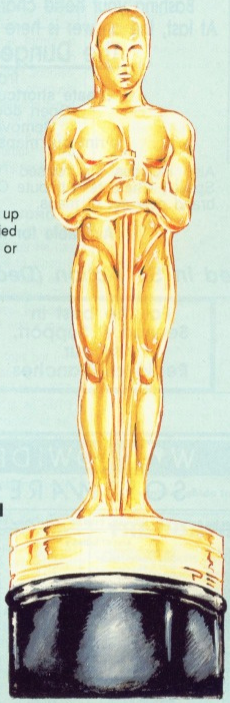

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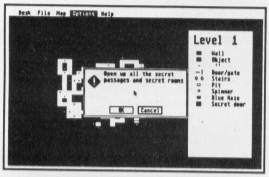

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MODELLER'S DEN

"In an attempt to start programming, I bought the GST C compiler but I have not been able to get on with C so I am looking to purchase an assembler compiler and editor but cannot afford very much," writes Adam Connors from Coventry. He suggested programming the GST Editor directly with assembler and then asking it to assemble and link but as far as we know this is not possible. The only real suggestion is to look through our special offers pages for discounted assembler software. *Devpac* is the assembler used by most programmers and is recommended.

FAMOUS ICONS

The *Fast BASIC* SETMOUSE command could do with some clarification since the only guide on offer from the manual is of a straightforward explanation about user-defined icons. However, you can define your own quite simply without first having to join Mensa. Mark Greatrix from Staffordshire explains:

"The first two words are the X and Y position of the 'hot-spot', ie. the action point of the arrow or the centre of the cross hairs. The next word is always 1 although trial and error can produce some very unusual results such as the icon appearing to slide underneath the screen in an XOR manner.

"The fourth and fifth words are the colour indices of the mask and shape respectively. Usually these are 0 and 1 although any colour can be used as long as the two are different. The remainder of the data concerns the actual mask and shape definitions, usually shown as 16-bit binary numbers since it's easier this way to see how the final shape will come out.

"To initiate the mouse use SETMOUSE 255, start address. Two methods of achieving this are shown and include one where the data is in RESERVED memory and the other where the data is held in an array and can then be called by using the @ (address of variable) function.

"As you can probably see, animation is possible within the icon by preparing several forms in memory and flicking through them, adjusting the start addresses accordingly. BASIC is obviously too slow for this operation but if it's compiled or can be interrupt-driven then animation is a definite possibility. The example listed alongside illustrates the technique in action."

WE HAVE THE WORD

Ian Atkinson from Plymouth is having trouble with *ST Writer* He has successfully managed to place it in an AUTO folder so that it automatically loads on power-up. This works okay for low-res, but does not seem to function with a medium-res. desktop.

Since *ST Writer* does not use any GEM functions during execution it can be renamed to a .TOS program and placed in an AUTO folder without any trouble at all, however, *ST Writer* is still not designed to be executed automatically in this way so you will always encounter problems when trying to auto-boot it.

It's a miracle that you managed to get it to auto-boot in low-res. since we could not get it to properly auto-boot in any resolution.

HERE WE GO AGAIN

Some of you have been having problems with the stereo ST tip back in issue seven's Desktop. The chip shown in the diagram was designed to be a cut-away section of the top half of the chip

This month MARK HIGHAM is sorting through all your problems, throwing away the queries about silicon implants and doing his best to answer the serious ones.

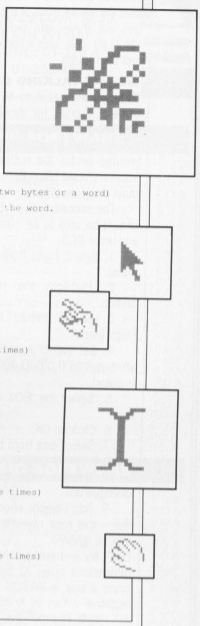
```
DIM MseFrml(74)
PROC Init
SETMOUSE 255,@MseFrml(0)
END

DEF PROC Init
FOR f = 0 to 73
READ g
MseFrml(f)=g
NEXT
ENDPROC

\Set up 'hot spot' and colours (data is in two bytes or a word)
\The first bytes of 0 in the data, pads out the word.
    DATA 0, 0 :\     X and
    DATA 0, 0 :\     Y of 'Hot Spot'
    DATA 0, 1 :\     Always 1
    DATA 0, 0 :\     Mask and
    DATA 0, 1 :\     Shape colours

\Mask Data
    DATA %11111111, %11111110
    DATA %11111111, %11111111 (Repeated 14 times)
    DATA %01111111, %11111110

\Shape Data
    DATA %00000000, %00000000
    DATA %00111111, %11111100
    DATA %01001000, %00010010
    DATA %01001000, %00010110
    DATA %01001000, %00010110
    DATA %01001000, %00010010 (Repeated three times)
    DATA %01001111, %11110010
    DATA %01000000, %00000010
    DATA %01000111, %11100010
    DATA %01000100, %11100010 (Repeated three times)
    DATA %00111111, %11111100
    DATA %00000000, %00000000
```



■ **The definitive guide to making icons famous.the *Fast BASIC* way.**

THE CONTINUING SAGA OF STAC

Certain conditions can be added to *STAC* to enable you to access an additional four compass directions. Steven May from Aberdeen suggests a method of doing this:

1. Load in *STAC* and then loading in one of your own files.
2. The next step is to exit to the main menu and select VERBS. Once done, press Insert and type any number. Alongside that number enter: SOUTHEAST. Alternatively, you can type: SE for memory purposes.
3. Perform this same operation for the rest of the compass points, SW, NW, NE. Then exit back to the main menu and select SPECIAL CONDITIONS. Select condition 19 or the next available condition and select its first condition. You must type exactly what is written here:

```
if verb "SE" and room
< 9999 or room > 0 then
goto room desclng wait
```

"SE" can be changed to "SOUTHEAST" if you put SOUTHEAST in VERBS.

4. For the next three conditions, you should change "SE" or "SOUTHEAST" to the rest of the other directions as you enter them. Altogether you should have four conditions. Do NOT add any more conditions to these that have nothing to do with directions.

DESKTOP

and was in no way meant to represent the whole thing. If there's anyone out there who purchased a YM-2149 chip and chopped it in half then tough.

WE ARE TALKING DIALOG

This tip was sent in by M. Langley of West Sussex for those of you who have ever wanted your dialog boxes to be transparent or fragmented or for the buttons to be superimposed directly onto the main program display.

The process uses WERCS but should be able to be converted to any other RCS.

1. Select Form from the tree menu.
2. Highlight the root tree object.
3. Select Extras from the Flags menu.
4. Set the X, Y, width, height attributes to 0,0,640,400 (or 200 in color).
5. Select the IBOX radio button.
6. Click on OK.
7. Select size from the border menu.
8. Enter a value of 0 in the dialogue box.
9. Add objects where you feel like - the root object's presence can be ignored.

Don't try and change the size and dimensions (step 4) by dragging since a bug in WERCS will cause negative values of X and Y which will result in problems when you edit your resource file at a later date.

WELL I'LL BE SCANNED

For people who own a hard disk and make constant requirements on GDOS, it's not uncommon to move GDOS into the AUTO folder on a hard disk. This is fine for most things but the Datel Handyscanner software will clash with GDOS and cause infinite problems, writes Mr. F. Thompson from North Yorkshire. Datel do intend to resolve the problem soon.

REALLY HARD PROBLEMS

Martyn Armitage from Sheffield has written to *Format* with more information on auto-booting hard drives, the crashing of programs in AUTO folders and Desktop Accessories. He has been using an Atari SH204 20Mb hard drive and was developing a desktop accessory which was accidentally saved onto hard disk and not erased. When the machine was initialised again, the accessory was auto-booted from the hard drive which instantly caused the ST to crash.

The way around this, according to those in the know at Atari, is to power up the monitor, external drives and hard drive as normal and then power up the computer. As soon as the light on the internal floppy disk has flashed, press down and hold the Alternate key.

Almost all hard drive auto-booting software is designed to cease loading if this key is depressed. The desktop will appear as normal but without any icons for the hard drive. If this refuses to work then keep trying - it will function properly in the end. Using the utilities supplied with the hard drive, it should then be possible to edit out the offending files and then re-install the auto-boot driver.

GRABBIT

Neochrome is a curious program, totally without documentation, so it's not uncommon to find curious little hidden assets. Ahmed Alam from Manchester has found an animation feature masked behind the Grabber icon.

It can be accessed by pressing down on the right mouse button when the pointer is over the 'r' in Grabber. You may need to try this several times before it works correctly but once you've managed it the new icon will appear on the panel. It looks like an old camera and gives you something new to play with.

WIN LOADSA DOSH

If you're having trouble with your ST or if you have any hints or tips which other ST owners will drool over then send them immediately to Desktop, *ST Format*, 4 Queen Street, Bath. BA1 1EJ. Each month we give away £30 for our favourite tip so if you're looking for some extra dosh, get writing.

CREATING PRINTER DRIVERS

The manual supplied with *1st Word* is efficient enough in explaining the operation of the software, but when it comes to the section on installing your own printer driver, it becomes nonchalant in its explanation of some very basic points.

If you try some of the printer drivers supplied with *1st Word*, it's likely that you'll obtain some form of printout eventually, but unless your printer matches one of these drivers exactly then some of *1st Word*'s text styles may not show up on the finished document, i.e. bold, italic, etc.

1) Open the \PRINTER\ printer folder.

2) Select LX 80.HEX from the \PRINTER\ folder and drag it to your main directory window. Click on OK at the prompt, then when the copy has finished you will have two LX 80.HEX files, one in each window.

Note: I only picked the LX 80 file as most options are used on it. Daisywheel owners should use the Qume file.

3) Click on the LX 80.HEX file in the main directory window and then on the file menu at the top of screen. Select Show Info and change the .HEX extension to a .DOC extension. You have now created a file that can be loaded into 1st Word.

4) Load 1st Word and then select LX 80.DOC, this will be loaded in and you will be presented with the configuration table for a fairly standard dot matrix printer. Scroll down the document a short way, and stop at the heading * Printer characteristics. Just above this you will see six zeroes, leave these alone for now.
Note: Only the first and last zeroes apply to dot matrix. printers If you own a daisywheel, refer to your manual.

5) You will now require your printer manual to input the correct control codes (hex only) and a lot of patience. Use Delete and the cursor keys to input your own codes. Continue down the list altering the lines one by one until you reach the heading * Translation Table. With any luck, you will not need to alter any of the entries listed here at the moment.

6) Now we come to the good part that the kind chaps at G.S.T. omitted from their otherwise quite informative manual. Before saving your hard work, go to the menu marked Edit and click on WP Mode to turn it off. Then go to File and select Save as. Rename your work to whatever printer you have and give it a .HEX extension. Click on OK to any prompts that appear. When saved, go to File and select Quit.

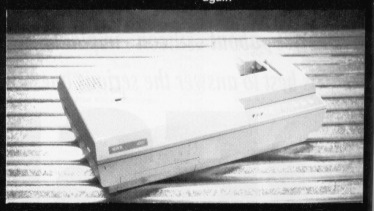
7) Click on your .HEX file and drag it to the \PRINTER\ folder window. When copied, your new .HEX file will be ready to be installed. Click on INSTALL.PRG, this will list a directory of all available files. Select the one you have just created and click on OK.

8) When finished, drag the 1ST PRNT.DOT file over to the main directory window and release. Click on OK to any prompts.

9) You should now be ready to try out your new driver.
Note: If you have created a data disc to hold your .DOC files on, you must copy your new 1st PRNT.DOT over to it.

It's now a good idea to type out a test document using *1st Word* and including all the different text styles available. Obtain a printout and examine it to see if any styles or combinations are not as they should be.

If all is not well then it's back to step three to try all over again



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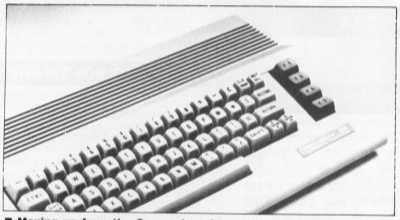
WORKBENCH

If you've got an Amiga and you've got a problem then you're in the right place. This month JASON HOLBORN answers more of your queries and puts the final touches to his AmigaDOS tutorial.

HARD TIMES

When programming machine code on my Commodore 64, all I had was an area of RAM and a set of graphic registers which controlled the screen, sprites and the raster. This was the base level of the machine – if I wanted anything to happen it was up to me to program it.

Things aren't that simple on the Amiga. There is such a wealth of silicon to control, I'm not sure where to start. I simply cannot find the machine's base level. I'm particularly interested in the graphics library and I am therefore considering buying the *Amiga Hardware Reference Manual* and Abacus' *Amiga System Programmers Guide* – you won't regret it!



■ **Moving up from the Commodore 64 can be a frightening experience for the best of us!**

ROM Kernel Manual. What I want to know is will the book describe the way the computer holds screen info, uses the raster, etc? I am particularly interested in writing arcade style games.

Tara Nanders
Midlothian

The Amiga system's software (libraries, multi-tasking, Exec etc) is only an interface between the programmer and the Amiga hardware. If you ignore the operating system and program the hardware directly, Amiga programming is in fact very similar to programming on a machine such as the C64. All the Amiga custom chips are memory-mapped and can therefore be easily programmed using direct addressing.

You'll find that nearly all games programmers program the Amiga from this base level. Programming the Amiga hardware may sound ominous, but, surprisingly, it is a lot easier than working with the system's software. It can be a real joy to work with. Instead of buying the *ROM Kernel Manual*, treat yourself to the *Amiga*

LOST WITHOUT A BMAP

I have had an Amiga 500 for five months now and I am generally pleased with the computer. Recently there have been a few things causing me distress:

1. Please could you explain the purpose of, and the difference between, the following library-associated file extensions *_lib.fd*, *bmap* and *library*?

2. Why are the files *intuition.library* and *graphics.library* (to name just two) missing from the LIBS: directory on my Workbench 1.2 disk?

3. Finally, while using the *Devpac* assembler from cover disk #10, I could not get the following line to work:

```
INCLUDE "intuition/intuition.i"
```

The assembler produces error code #205. Which file does it refer to, *_lib.fd*, *bmap* or *library*?

James Cane
Cheshire

1. The three different file types can be split into two different groups: the first two (*_lib.fd* and *bmap*) are library definition files that tell *AmigaBASIC* where all the routines are located in a library. They do this by using what are known as 'library offsets'. The *library* file is the actual library itself. These *library* files are not just for *AmigaBASIC*, but can be used with any language.

2. There are, once again, two different types of library: those that are disk-based and those that are ROM-based. The ROM-based libraries are held in the Kickstart ROM while the disk libraries are held in the LIBS: directory of your boot disk.

Disk-based libraries are automatically pulled into memory when the library is opened and can then be 'flushed' from memory when the library is closed. Both libraries that you mention are actually held in ROM which explains their absence from your disk.

3. The INCLUDE line is trying to read the assembler equivalent of *AmigaBASIC*'s *bmap* files. These extra include files are only available on the full version of *Devpac* (which can still be bought for the amazing price of £25 from our mail order department on 0458 74011!).

STARRY EYED

Have you ever wanted to create one of those weird swirling starfield effects that seem to crop up in computer games quite a lot these days?

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Finally, select CYCLE from the mode menu, turn on symmetry and click on the dotted free hand draw gadget to start. Now draw your swirly pattern, starting from the centre of the screen and moving slowly outwards.

Colin Roach
Solihull

MOUSE MAINTENANCE

Anyone who has owned an Amiga for more than a couple of months will know that the first thing to go wrong is usually the mouse. The most common problem with the mouse is malfunctioning mouse buttons. This problem can be temporarily fixed using the following tip.

First, open up your mouse (be careful not to lose the screws) and carefully remove the sticky tape holding the two mouse button leaf switches.

Swap the pressure pads and, when the are correctly orientated, re-apply the sticky tape. Put the mouse back together; chances

HELP – I NEED HOLBORN

Is your Amiga causing you grief? Are you failing to see eye to eye with the CLI? Or can't you get Agnus and Denise to kiss and make up? You need the Workbench helpline! Every month the Format boffins will be sifting through your letters to try and answer as many as possible.

Send your problems to auntie Holborn at: WORKBENCH HELPLINE, Amiga Format, 4 Queen Street, Bath BA1 1EJ.

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are your mouse will work fine (for a while).

Surely the other mouse button will stop functioning? Surprisingly, it doesn't because the problem isn't just with the leaf switches, but the actual mouse button itself which can become worn.

David Collins
Kent

COVER DISK BLUES

My problem concerns your cover disk; I understand how to copy them to another disk by dragging the icons to the RAM disk and then to the destination disk. Unfortunately I have not been able to follow the suggestions of B Wells' letter in your Workbench section on locating the file called MORE. Everything goes well from the CLI until the line PATH RAM:ADD. Everything seems to stop and the CLI tells me it cannot find RAM:ADD. What am I doing wrong?

Jonathan Smith
Stevenage
Hertfordire.

First, you seem to have made a typing error – there should actually be a space between RAM: and ADD. Second, if you are having problems backing up our cove rdisk, refer to our new improved *(About time don't you think, Jason – Ed)* 'HOW TO USE THIS DISK' page at the end of the Disk Extra section. This provides complete instructions on backing up your coverdisk from the CLI.

ALL CHANGE IN WORKBENCH

As you've probably already found out, your beloved *ST Amiga Format* is to split into two separate magazines from next issue. The good news is that not only will Workbench continue in *Amiga Format*, but it will also be much bigger and better!

Just because we'll be Amiga specific doesn't mean that you lot can rest on your laurels and stop sending in those tips. *Amiga Format* will mean more Workbench pages which means more tips. But who's going to write these little gems? You! *Amiga Format* will be your magazine and we hope to put as many of your tips in as is possible.

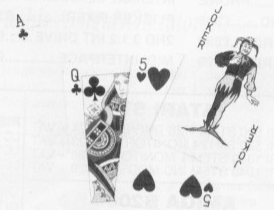
To reward you, we'll be dishing out £30 to the best tip of the month – get writing! Send all your tips to: WORKBENCH, AMIGA FORMAT, 4 QUEEN STREET, BATH BA1 1EJ.

BEGINNER'S CORNER

This month in Beginner's Corner, we present the final installment of our AmigaDOS tutorial by looking into a few of the more exotic CLI commands that the Commodore manual writers forgot to tell you about.

The first thing you must do (as always) is to set up a more usable working environment. Reboot your Amiga, load Workbench and drop down into the CLI and enter the following:

```
COPY C:DIR|TYPE|DELETE|COPY RAM: <Press RETURN>
PATH RAM: ADD   <Press RETURN>
```



GOING WILD WITH CARDS

So far you've looked at a couple of the more commonly used CLI commands and how they can be used to carry out particular operations on individual files. Working with individual files is all very nice, but when working with a large number of files you can waste an awful lot of time unnecessarily. Wouldn't it be nice if you could display all files that end in a .BAK extension, and then delete them! Well, not surprisingly, AmigaDOS does allow you to carry out

such operations using what are known as wildcards.

Wildcards are best described as pattern matching symbols. Using wildcards you can give AmigaDOS a number of rules about the files you are interested in; it will then only act on files that fulfill all of these rules. For example, using wildcards you could ask AmigaDOS to only display files that start with the letter S using the line:

```
DIR S#?
```

This line tells AmigaDOS that we are only interested in the first letter of a filename being an S – the rest of the filename is of no interest and can be anything ranging from S to S3g5F3fge342!.DOC.

This could be extended so that only files starting with S and ending in DOC were found if you entered a line like:

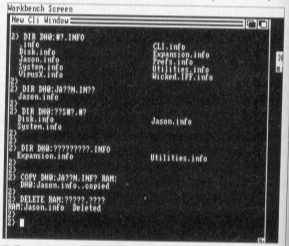
```
DIR S#?DOC
```

AmigaDOS will then read the disk directory and report on any files that fulfill both of these rules. For example, if you had a file called SUN.DOC and a file called S343534dfdfeg.DOC, both fulfill the wildcard rules above and would therefore be reported.

As you may have already noticed, the two symbols used for wildcarding under AmigaDOS are the hash (#) symbol and the question mark. The wildcarding examples we've already looked at are rather haphazard – but, using the question mark symbol, more stringent wildcarding can be carried out.

The hash symbol is used in conjunction with the question mark to mean any unspecified number of unknown characters. By using #? you can tell AmigaDOS that you're not intereseted in the number of characters or which particular characters they are. The hash comes into its own when working with long filenames.

The question mark is a bit like the blank tile in *Scrabble* as it can be used to represent any ASCII character. The question mark allows you more pre-



■ **Experimenting with wildcards from the CLI.**

cise control over the different aspects of a filename such as its size. If you wanted to display all seven-letter filenames that started with an S and ended with DOC, you could enter:

```
DIR S???DOC
```

Some very complex wildcarding is possible by using the question mark. For example, what files is the following command trying to display?

```
DIR ??ER??.D??
```

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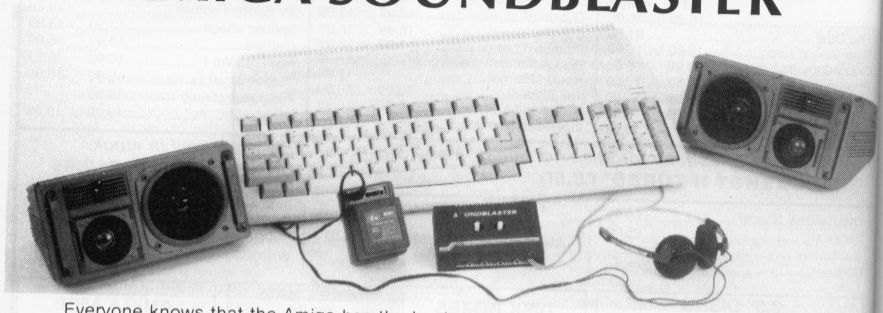

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ARGASM

JASON HOLBORN previews the latest Amiga assembler that promises to leave the competition standing.

■ **Jez San takes time out to contemplate life, the universe and everything.**

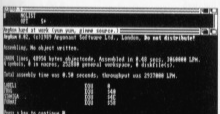
Which machines do you think the vast majority of games software for the ST and Amiga are written on? Although the answer seems obvious, surprisingly it isn't an ST or an Amiga, but is in fact the PC-based PDS system.

The reason why nine out of 10 programmers prefer PDS is because of its blindingly fast assembly speed – comparing the operating speed of a PDS system to an ST or Amiga assembler is like racing a Porsche 959 against a Robin Reliant!

One of the few software houses to use the Amiga for all their software development is Jez San's Argonaut Software, authors of the highly acclaimed *StarGlider 2*. All Argonaut's Amiga and ST games were written using HiSoft's *Devpac* assembler, but even *Devpac*'s relatively fast assembly speed soon started to get to Jez and so *ArgAsm* was born.

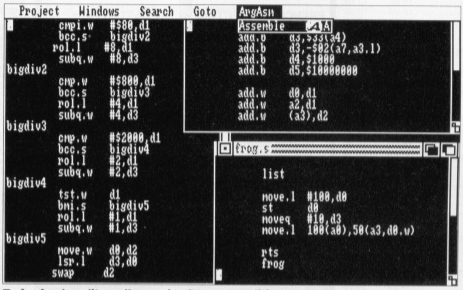
BLASTED TEXT!

ArgAsm was originally designed as an in-house tool for the use of Argonaut's 11-strong team of programmers. The main requirement of *ArgAsm* in those early days was to increase assembly speed to at least twice that of *Devpac2* while still retaining 100 per cent compatibility with



■ **The *ArgAsm* assembler in action. Both assembly time and a lines per minute count are display as well as a cross reference of all labels used.**

HiSoft's system – when *ArgAsm* started clocking speed increases of over 1000 per cent everyone was amazed. *ArgAsm* consists of two distinct parts – the *ArgAsm* text editor and the assembler. The text editor looks similar to HiSoft's editor but has two major differences. Firstly, the *ArgAsm* editor is a multiple window affair that allows as many different source files to be edited in separate windows as memory will allow.



■ ***ArgAsm*'s editor allows simultaneous editing and assembling of as many source files as you can load into memory.**

Speed doesn't just increase in the assembler as *ArgAsm*'s text editor is one of the fastest around. This increase in text display speed is achieved by not using the Amiga's console device, but instead using Argonaut's custom routines to literally blast text onto the screen using the Amiga's blitter.

YUM YUM, GIMME SOURCE!

The *ArgAsm* assembler is a powerful beast and can be used from both the text editor and, for the purists among you, the CLI. *ArgAsm*'s parser is specially optimised to achieve maximum assembly speeds, typically seven times that of *Devpac2*. *ArgAsm* also offers many extra features such as label cross referencing and the ability to view the cycle times of each instruction – a very useful feature when trying to optimise your code. *ArgAsm* does not include a monitor/debugger such as HiSoft's *MonAm2* and so if you do need one, this will have to be bought separately. The decision to leave out the monitor was based mainly around the fact that most games software will take over the machine and therefore render any monitor program useless. If you do require a monitor/debugger, they can be bought separately (check out *MetaScope* – one of the best around).

AVAILABILITY

Jez intends demonstrating *ArgAsm* at the next Amiga Devlopers' Conference in San Francisco, and it should be commercially available some time in late July. Final pricing and marketing details are still to be fixed but Argonaut hope to market the product themselves at about the same price as *Devpac2* (£60).

When *ArgAsm* is released, it will herald the arrival of the first truly professional quality assembler system for the Amiga. At last, the average user will have access to a development system that offers similar performance to a PDS system at an unbelievable price. If you're an Amiga assembler programmer, then you just cannot afford to ignore *ArgAsm*.

BENCHMARK CORNER

Still not convinced about *ArgAsm*'s speed? If it's hard facts and figures that you're after then just take a look at the table below. These benchmark tests were carried out on a standard Amiga 2000 with 1 Mb of memory and a 68000 processor, except for the PDS tests which were done on an 8MHz PC-AT.

Bench mark	*Devpac 2*	PDS	*Argasm*	% inc. over *Devpac*	%inc. over PDS
	lines assembled per minute				
1	35,300	88,000	250,000	700	300
2	66,700	176,000	1,034,000	1600	600
3	18,000	35,000	105,000	600	300
4	120,000	200,000	2,500,000	2100	1300
5	6,000	13,000	40,000	700	300

Benchmark 1 – 5000 lines of MOVEQ #100,D0
Benchmark 2 – 10000 lines of RTS
Benchmark 3 – 3000 lines of MOVE.L #12345,100(A0,D2.L)
Benchmark 4 – Conditional Assembly test (skip 10000 lines)
Benchmark 5 – Macro Handling (Macro containing 10 RTS lines, called 1000 times)

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As you're probably aware, *ST Amiga Format* will cease to exist next month. There will be two magazines in its place: *ST Format* and *Amiga Format*. You'll get twice the coverage, twice the number of disk programs and twice the action for your machine. But to mould the perfect magazine we need your input. Fill in the form, pop it in the post and you could be one of five lucky winners to get a year's subscription to either *ST Format* or *Amiga Format*.

The place to send your form is *ST Amiga Format* Questionnaire, 4 Queen Street, Bath, BA1 1EJ. You must get your entry in by the 20th of July to be eligible for the competition. The first five entries pulled out of the hat win - and that's final!

Name .....

Address .....

.....

Occupation .....

1. How old are you?

Under 16 ..... ❑
17-24 ..... ❑
25-34 ..... ❑
35-44 ..... ❑
47-54 ..... ❑
Over 54 ..... ❑

2. What are you?

Male ..... ❑
Female ..... ❑
Unsure ..... ❑

3. How much do you earn a year?

Nothing ..... ❑
Student grant (same as above) ..... ❑
£3,000-£6,000 ..... ❑
£6,001-£10,000 ..... ❑
£10,001-£14,999 ..... ❑
£15,000-£19,999 ..... ❑
Over £20,000 ..... ❑

4. What TV programmes do you watch? .....

.....

.....

5. Which newspapers do you read regularly? .....

.....

6. What car/bike do you drive? .....

.....

7. What sports do you play? .....

.....

8. List your hobbies other than computing .....

.....

9. Which computer(s) do you own?

520ST ..... ❑
1040ST ..... ❑
Mega 1 ..... ❑
Mega 2 ..... ❑
Mega 4 ..... ❑
Stacy ..... ❑
A1000 ..... ❑
A500 ..... ❑
A2000 ..... ❑
A2500 ..... ❑
None ..... ❑
Other ..... ❑

10. What hardware do you own? Intend to get?

	OWN	INTEND TO
Second drive	❑	❑
Hard drive	❑	❑
Video digitiser	❑	❑
Sound sampler	❑	❑
MIDI interface (Amiga only)	❑	❑
MIDI instrument	❑	❑
Joystick	❑	❑
Modem	❑	❑
Memory upgrade	❑	❑
Printer	❑	❑
Monitor	❑	❑

11. What software do you own? Intend to buy?

	OWN	INTEND TO
Games	❑	❑
CAD software	❑	❑
Wordprocessor	❑	❑
Database	❑	❑
Spreadsheet	❑	❑
Art package	❑	❑
Animation software	❑	❑
Music package	❑	❑
MIDI sequencer	❑	❑
DTP package	❑	❑
High level language	❑	❑
Assembly language	❑	❑
Comms software	❑	❑

12. What do you use your machine for?
Give a percentage rating.

Leisure ..... %
Creativity ..... %
Business ..... %

13. Roughly how much do you spend on computer gear each month?

Under £20 ..... ❑
£21-£40 ..... ❑
£41-£60 ..... ❑
£61-£80 ..... ❑
£81-£100 ..... ❑
Over £100 ..... ❑

14. Breakdown your expenditure last year.

Hardware ..... £
Games software ..... £
Creative software ..... £
Serious software ..... £

15. How much do you think you'll spend in the next year?

Hardware ..... £
Games software ..... £
Creative software ..... £
Serious software ..... £

16. What are your top five items of software? .....

.....

.....

17. List and rate the magazines you read:

ST Amiga Format ..... /10
..... /10
..... /10
..... /10

18. Rate your interest in the following sections of *ST Amiga Format*:

News ..... /10
Futures ..... /10
Gold Dust ..... /10
DIY projects ..... /10
Hardware reviews ..... /10
Software reviews ..... /10
MIDI ..... /10
Disk ..... /10
Surveys ..... /10
DTP ..... /10
CAD ..... /10
Competitions ..... /10
Adverts ..... /10
Animation tutorial ..... /10
Games ..... /10
Game Busters ..... /10
Specials/features ..... /10
PD Update ..... /10
Assembly tutorial ..... /10
Desktop ..... /10
Workbench ..... /10

19. ST owners, tick the drive type you owned:

Single sided ..... ❑
Double sided ..... ❑

20. Amiga owners, do you use the CLI:

Never ..... ❑
Sometimes ..... ❑
Lots ..... ❑

21. It's your magazine - what do you want to see in it?

.....

.....

.....

22. Which magazine will you be buying?

ST Format ..... ❑
Amiga Format ..... ❑

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SB835....First Word wordprocessor - fully GEM managed WPR.
SB301....Desk Accessory 1 - large selection. ACCs inc. Dir printer, ram disks, tinytool disk edit, prtr spooler, ACC loader and more.
SB302....DA2 - Includes a clock, high quality calculator, free ram checker, Breakout game and a watch.
SB303....Utilities 1 - 68k Basic lang., reverse text colour, fastcopy prog, copy prog with format cap up to 830k D/S, 410k S/S, file compressor and decompressor + more.
SB309....Adventure Writing System - This prog comes with full doc. on the disk for writing text adventures + sample adventure Starship Columbus included.
SB312,313,314....C language disks 1, 2 & 3 - A set of 3 disks of progs to illustrate to the beginner the use of 'C'. Counts as 3 single disks.
SB322....Pics disk 2 - The original Neochrome, some high quality pics + others
SB324....Address Log - A limited address book/label printer, a disk catalogger that auto reads dirs + much more.

SB328....DA 3 - Desk accs inc. are formatter, calendar, clock, dir printer, disk manager, copy file, disk free space, delete file, create folder & rename folder. Print util, programmers calc & reversi game.
SB334....C Compiler - Comprises boot up utility, ram disk & command line interpreter. The compiler is processor parser & code generator.
SB338....Games Disk 2 - Breakanoid, which is a cross between Breakout and Arkanoid, DGDB is a German game like Shamus, a Boulderdash type game and a great fruit machine simulator.
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SB354....Games disk 14 - Diamond Miner, a multi-screen game with built in editor. Also Snafu and card game Skat. ✻ MONO ONLY ✻
SB363 ST Word Processor 3 - ST Writer Elite. Superb release of a great wordprocessor inc. docs & tutorials.
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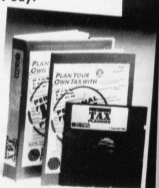

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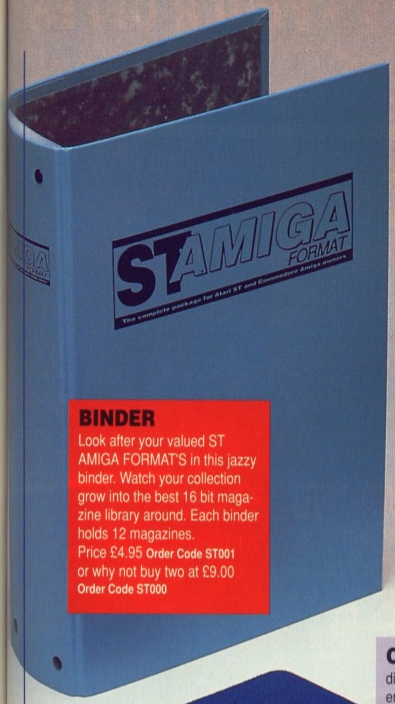

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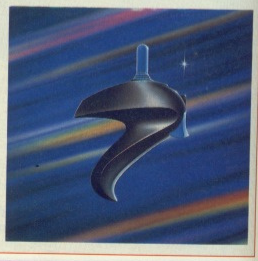

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Need some practice on your wordprocessor? Write to us with your winges and worries and be immortalised in print. Send your ST-style epistles to STUART ANDERTON, ST Format, *4 Queen Street, Bath BA1 1EJ. Amiga owners should send stuff to BOB WADE at the same address.*

TAKING SIDES

Why is it that all software houses produce ST software on single-sided disks which can only handle a pathetic 360K? STs with double-sided drives started to be produced nearly two years ago and are standard in whatever ST is purchased nowadays. Double-sided disks can easily be formatted to 880K plus using a decent formatter so why in the hell don't software houses do something about this? ST owners with single-sided drives are in a minority now, and boy is it annoying to keep having to swap disks in between games. So come on all you software houses take note and keep up with the times.

Michael Robinson
Slough, Berks.

GLORIES PAST

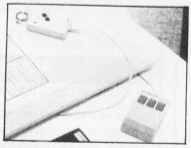
I am after back issues of *ST Amiga Format* (namely 8, 9 and 10). Are these available?

D.J.Ross
Ilford, Essex.

Most back issues of Format *are still available, but check first on 0458 74011. Send a cheque for £2.95 made payable to Future Publishing to Format Back Issues, Future Publishing, The Old Barn, Somerton, Somerset TA11 7BY.*

BOTTOM PRICE PUCK

When I read the review of *Summa Sketch* in *ST Amiga Format* 11 I was inspired to make my own puck! It isn't as mad as it sounds.



■ **A real and very expensive puck – but you can make your very own, Blue Peter style.**

It really worked, eventually! Few people have the skill to make a tablet, but a home made puck is but an old ruler and some sticky tape away from anyone.

Take an old plastic ruler and saw it off a couple of centimetres from the end. Draw a cross on the ruler with black felt pen and stick it to the back of your mouse with the tape....and that's it!

The puck can then be used to trace a line drawing from paper to the screen, using a paint package. Though it's not fantastically accurate it's much easier than by hand. You'll find that your drawings will be squashed on screen, but this can be rectified if you have a slow-draw function on your paint package (setting 4 on Degas *Elite*). And there you have it, or rather you don't until you make it, as Barry Norman might say.

Also, I would like to know why, in *Format*'s new image, everybody in the *Format* team except you, has a mug shot at the top of their pages. I will buy next month's just to see what a phlebotomist looks like!

Mark Blakey
Blackburn, Lancashire.

No picture of me this month because I don't want to foster a Stalinist personality cult.

MORE RUBBISH

In reply to Marcus Sam's letter (Issue 11) I would totally agree that your magazine would be greatly improved by cutting out all the boring rubbish – like games reviews, purely Atari material, and letters like this, and providing more serious stuff, especially for the BASIC programmer. After all, everyone has a 'free' BASIC interpreter whereas C and Assembler (and games) are reserved for the privileged few with bottomless resources.

Seriously though, you are obviously trying to cater for everyone (except BASIC programmers) and to continue doing so I suggest you improve your coverage by extending your magazine to at least 500 pages and 10 disks each month, for the same cover price. You might then be able to cover about 10% of what the Amiga (and 90% of what the ST) has to offer!

By the way, my daughter picked up the magazine and said, 'Why do they call it 'Saint Amiga'?' Very apt, I thought. (Guess which machine I have).

Rod 'Stirrer' Pilling
Mickleover, Derby.

Well, as of next month the disk will be packed with Amiga only stuff and the ST won't get a single mention - assuming you buy Amiga Format *that is.*

SPEED STAKES

In your article about assembly language in issue 11 of *ST Amiga Format*, you made a special point of mentioning the speed of each

■ **The good old Z80. You knew where you were with a chip like that.**

instruction. Years ago when I wrote Z80 code on the Spectrum I realised that analysing the ratio of straight code/looping could lead to faster results and thus bought the *Z-80 Reference Guide* by Alan Tully (published by Melborne House). This book lists all the instructions and their relative speeds.

When the new Maplin catalogue came out in 1988 I spotted that they had added the 68000 version of this invaluable reference book to their stock. Unfortunately, after waiting three months, I still hadn't received a copy and so I got my money back.

Getting back to the point, do you know where I can get a copy of the 68000 version of this book? If not, can you recommend a good

book that lists the clock cycle times for each instruction?
M.R. Sherdley-Davies
Blackpool, Lancs.

Any bookshop will be able to order it for you if you know the full title.

IBM AN IDIOT

If you gave a prize to your most idiotic readers, I think I would be one of the possible winners.

I've been interested in computers for a long time, mainly to make music with them. Recently I changed job and decided to buy one. And I, who always thought of buying an Atari, bought a PC compatible (I have to take work home and at work they use IBMs). Ever since that day I have regretted it. Everywhere I look, Atari makes MIDI work! It's almost impossible to find anything else at a sensible price). That's why I finally decided to ask you, do you know of any program that enables me to run Atari programs on my Philips NMS 9111?

Yes of course I could buy an Atari - but my PC took two years to save for.
Willem Vanden Eede
Belgium.

Sorry old chap, you're a bit stuck. The only way to run Atari programs on the PC would be to buy a 68000 co-processor board, and even then I doubt it would work with a MIDI interface. And it would cost several times the price of an ST. Get saving again.

GIMME A FIX

I'm not going to bother to tell you about how wonderful you are because you probably all ready know. Instead I'll get right to the point. About a month ago I was indulging in a little creative world annihilation when my figurine decided to play by himself.

He went right to the top left-hand corner of the screen and stayed there, firing away quite happily. I turned my ST off and on again and reloaded. The same thing happened again, but this time the man continued firing but stayed where he was. This happened on and off for about a month and I put up with it.

Today, however, I was working within GEM and the pointer started to fade in and out and changed colours every now and again, then at about 10 second intervals it would completely disappear and dots, similar to those when enlarging a window drew little circles which erased themselves. So I turned it off and on again and whilst double-clicking on a disk icon the pointer stayed where it was and a bleeping sound, much like when you press a wrong key, arose from the computer. Then there was silence and I could not get the pointer to operate again. I turned the computer off and on again and the same thing happened again and again.

You may be able to tell I'm in a bit of a spot and some direction from you would help a lot.
James Davis
Plymouth, Devon.

After consultation with our technical experts we have come to the conclusion that your machine is 'broken'. Our advice is take it to your nearest computer dealer and offer them money if they restore it to life.

The best possible taste?

It is certainly the case that "marketing folk stuck for a creative idea have always turned to simplistic sexist messages to sell their products". (Silicon Stimulation, *Format* 12).

Considering that this supposedly investigative feature was littered with bare breasts (the nipple count was an extraordinarily high 22, plus a few near misses), sundry covered and uncovered crotch shots and one rather occupied male (possibly doing the ironing, but possibly not), I would like to make one point.

Magazine folk stuck for a creative idea have always turned to simplistic sexist images to sell their products.
Stuart Dinsey,
Stevenage, Herts.

If I want to see pictures of topless women I shall go to the newsagent and buy a gutter-press newspaper or suitable magazine. I have no wish to see your publication go the same way as *Amateur Photographer*. It is all to easy for magazines which cover male-oriented interests to exploit the female form – I hesitate to speak up for the women out there who have Amigas and STs but I dare say they will have found it offensive and embarrassing.

I wouldn't have minded the pictures if the article had been written a bit more carefully. It treated the matter insensitively and inappropriately. Pornography in computer games is to be taken no less seriously then in other media.
Andrew Johnson
Aspley, Nottingham

Sex should be dealt with openly as befits a very human and natural activity. My gripe is the way you presented the subject.

First the cover. A picture of Kim Bassinger in 91/2 Weeks with all the connotations of kinky sex (yes I have seen the film and found it distasteful, although I was aroused). The cover disk was carefully positioned to make you think there might be a nipple underneath.

Inside things did not improve. The nudge-nudge wink-wink text was almost elbowed out by copious amounts of female flesh.

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■ **Kim Bassinger: "Arousing".**

The debate about erotica vs. porn is a difficult and sensitive one. As responsible magazine you have a role to play in this. Come on let's have some serious debate on the issue.
Dermot Byrne
Luton, Beds.

It's impossible to deal with a subject like pornography without offending anybody, and we apologise if you were, but the subject is an important one and needed to be brought out for debate. Since we published the article Channel 4, The Sunday Times and ITN have all followed it up.

There is a lot of very hardcore porn out there on disk. We had to go to great lengths to find any 'page three'-type material which we could use – the cleaners were rather shocked by the cutting room floor. This illegal material is widely distributed among under age computer users yet the problem is almost completely ignored. Hopefully our article might have made some people more aware of the extent of it.

I'm not going to get involved in the erotica/porn argument, the issue is very emotive and people of differing opinions seldom come to any settlement.

I was, however, mildly surprised that we haven't received any letters from female readers.

A MAN OF HARLECH WRITES

I do not usually write in to magazines but there was a comment in issue 11 from H D Twiddle from Hull commenting on faulty cover disks.

I have been a subscriber to *ST Amiga Format* for 12 months, since the magazine first hit the streets, and in all that time I have only had one disk that did not work.

This I sent back straight away and had a replacement in my hands within a week, so I do not see that this is a great problem.

I think that if the programs on the cover disk were valued in cash we would most certainly have very good value for our money. The only thing that I think might be of some use in the future within your magazine would be a helpline.
PJ McNeilly
Harlech, Gwynedd.

You need technical help? Write to Desktop or Workbench for the best advice money can buy.

CALAMUS COCK-UP

As one of the oldest DTP bureaux catering specifically for the ST, I

was interested to read your review of *Calamus*. We have been testing the product over a number of months, and I have to say that it simply offers the best out put (on a SLM804) that I have seen from any DTP software, regardless of the machine.

■ ***Calamus*: loadsa shortcuts.**

But Mark Higham is wrong when he states that '*Calamus* offers a very limited number of keyboard shortcuts'. You can easily write your own. Inside the SYS folder is a file called CALAMUS.HLP. There, all the menu functions and icons are replicated in table form, and can be edited in any text editor. All that is required for a keyboard shortcut is to add a space and any character, and that function will be available from the Alternate key plus the designated character. So now, for example, I can call up the rulers and change the units from centimetres to inches with just two keystrokes.

Also, as I understand it, the UK release of *Calamus* will include PostScript facilities.

John C Nuttall
InterMedia, Farnham.

MR ANGRY

I am angry. You have made me angry. I quote from *Format* issue 11 page 7: "Yes I know it said playable on the cover, on the disk label, in the contents and in the disk pages (several times). Ulp. We screwed up."

What do I see on the cover of issue 11? "Playable demos on disk". What do I see on page seven? "Playable demos of both our Format Gold games. On the ST side there's two levels of the infuriatingly addictive *Archipelagos*" In the contents? "*Archipelagos* – playable demo of Logotron's Format Gold-rated game".

Have you considered standing for Parliament? You've obviously about as many scruples.

David Knight
Northolt, Middx.

A few people had some problems with Archipelagos, *but those who persevered got it to work eventually. It seems it must be booted from medium resolution mode.*

CALL THE SHRINK

I am in a terrible dilemma, and without some good advice will soon be looking for a reputable psychiatrist.

■ **The Amiga. An excellent micro, but on the other hand...**

I have owned a CPC464 for several years (don't turn away in disgust) and have become quite a prolific BASIC programmer on my trusty eight-bit. I have been considering for some time now upgrading to a 16-bit micro; and will have done, hopefully by the end of the year. The Amiga and ST are the two obvious contenders, but I have no idea which one to choose.

I have been reading various magazines for the past few months hoping to gain some insight into the advantages and disadvantages of these computers (I have found *ST Amiga Format* one of the most helpful in providing such information).

I want to play good, arcade quality games as well as serious programming and wordprocessing. I know that the Amiga has a slight edge over the ST with sound and graphic capabilities; but it does have a rather slow and noisy disk operating system and the ST does appear more popular on the software scene. So each one appears to have advantages over the other one.

Please help my predicament. I would greatly appreciate a unbiased opinion of the real quirks and advantages of both these machines.

Which ever one I do eventually decide on, I am sure to continue reading your excellent magazine. Keep up the good work.

Daniel Hopkins
Caernarfon, Gwynedd.

You summed up the case pretty well yourself. Both machines work as advertised. Both have excellent games and good applications software. If graphics and sound are the most important things in your life, try an Amiga, otherwise the bundle of goodies Atari gives away with the ST is a tempting package. The bottom line: if you can't make up your mind, toss a coin. You won't go far wrong with either machine.

Label nutters

A little tip for Nick Catchpole. Before putting on a new label, peel off the backing and then very carefully stick it on your forehead.

Yes, that's right, on your forehead.

Turn the label then stick it on your forehead again. Repeat until the label loses most of its sticking power. When you stick it down finally the corners won't peel up or anything but it peels off in one go if you peel it slowly.

If you think it's a naff idea at least give it a go.

Robert Hudson
Pontefract, Yorks.

Come on, this is a wind up isn't it?

Nick Catchpole is not the only one who has found difficulty in removing old disk labels (Letters, *Format* 12). I found the solution to the problem in a tin of Ronsonol lighter fluid (petrol). The tin even has a switch spout to stop it evaporating.

My method is to squirt on sufficient quantity to float over one side of the disk label – on 3.5-inch disks it's easier if you do the write-protect side first. As the petrol soaks in it softens the label adhesive and allows it to be peeled off.

Metalised labels can still be a little stubborn and having lifted a corner use Ronsonol directly on the underside. From experience I have found it does not damage the media if you are accidentally overgenerous.

If any adhesive remains on the disk it can be cleaned up with a little more petrol and a clean cloth.

Two words of warning. First, smokers beware! Ronsonol is highly flammable. Also it can cause headaches and other symptoms if used in large quantities in confined spaces.

Finally, having removed the old label, have readers thought of colour-coding their disk collection – red for utilities, green for games, etc.

I stock 3.5-inch disk labels in eight different colours, see my advert elsewhere in the magazine for details.

Brian Barton
Goldmark Systems

The lengths people will go to to just plug their products!

PC PROBLEMS

I was prompted to write by a couple of letters in issue 11. I am an A-level student with an Atari ST and have been using the technique of transferring files

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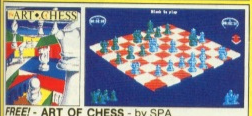

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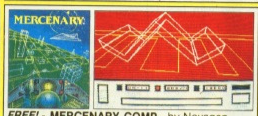

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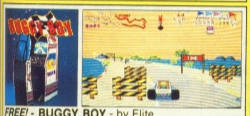

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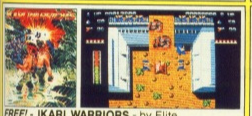

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PLEASE SEND ME FREE LITERATURE ON THE AMIGA

Mr/Mrs/Ms: Initials: Surname:

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Do you already own a computer
If so, which one do you own?

described by L E Bovington for some six months now with the PC at school.

As with everything there is a problem: the two drives on the different machines run at different speeds and so in the long term files can get jumbled. I have even had File Allocation Table (FAT) destroyed on the disk after a couple of months of use. The only solution is to reformat the disk either on a PC or using the panel accessory given away on issue 9's disk. You can then copy the files back onto this disk. What! You don't make back ups? Oh dear! When using this disk always keep a backup. Do not use it to store vital information, you'll be asking for trouble.

Also a wee note to Sean Currie. Read *ST Amiga Format* every month. His was not the first letter from Northern Island, his was the seventh.

And finally, congratulations on producing the best magazine in the Universe. I have bought a copy of every issue and treasure them all.

Paul Gregg
Co. Antrim, Northern Ireland.

SHOPPING LIST

Up till now I have used my Amiga 500 mainly for games but I have spent some time trying to learn the Amiga DOS. I would not like to use my computer for preparing, printing, and filing various domestic letters.

Could you recommend:

■ A suitable printer, one which will operate as a sheet fed

■ ***WordPerfect*: professional wordprocessing on the Amiga**

printer. I fancy the Star LC10 colour printer but know very little about it.

■ A suitable wordprocessor for domestic use, one including a spelling checker and expandable dictionary.

■ A desktop publishing package which I could use for my letter writing needs, but would also allow me and my children to learn about such a package?

P Neal
South Woodford, London

The Star LC10 is an excellent printer, but I would only go for colour if you really need it. The same money will buy you a better black on white machine. As for wordprocessors, check out Protext *from Arnos (which we use in our office) and* WordPerfect. *Both are fully professional packages offering all the features you'll ever need.*

DTP is a bit harder – most software is so packed with features that it can take a while to get to grips with. You could do worse than to take a look at PageStream, *reviewed on page 54.*

ALL THAT JAZZ

I wonder if you could possibly advise me as to the method of using my Atari 1040 in the production of high-class recordings. I

■ **Classy music on the ST.**

am a clarinettist and run a jazz-band. If I am not mistaken it is possible, is it not, to digitise natural sounds and reproduce them through hi-fi equipment?

I am not interested in electronic (or artificial) sounds and I have microphones. Could you please advise; what else do I need to purchase?

L S Blunt
Derby

You'll need a digitiser, like the one we described in issue 11, and some sound sampling software like Replay from that issue's disk. But don't expect really professional results. The sampling frequency and computing hardware aren't up to CD quality audio – but it'll give you an idea of what can be done.

CONTINENTAL TRAVELS

I own an Atari ST and am shortly going on a holiday to West Germany where a freind of mine owns an Amiga.

I was wondering if the *Format* cover disks would work on the Amiga after being played on the ST and vica versa without it affecting any of the files on the disk.

Niels Gudegast
Stockport, Cheshire

The cover disks should work fine in an Amiga after being used in an ST providing that you didn't write anything to the disk.

The peculiar disk format we use stores some of the Amiga information in disk space which the ST thinks it owns and vice versa, so it tends to get overwritten if you save onto the disk. A good reason to back it up.

All winners this month

As it's the very last issue of *ST Amiga Format*, we're going to give every single one of the authors of letters published this month their very own *Format* personal organiser.

Sometimes our generosity takes my breath away. Waddya mean we've got a warehousefull left? Cynics the lot of you.

But the prize giving doesn't stop this month. The writer of the best letter published each issue in both ST Format and Amiga Format will receive a fabulous reward. We haven't worked out exactly what it will be yet, but rest assured, it'll be good.

Write to both *ST Format* and *Amiga Format* at 4 Queen Street, Bath BA1 1EJ. We reserve the right to hack your letters to shreds if the fancy takes us. And we can't answer correspondence except in print – busy, busy, busy!

See me after

I was wondering who to send this letter to, maybe *PC Plus*, or perhaps *Computer Shopper*, but then I thought again, I read *ST Amiga Format* so I might as well send in a letter.

Y'see it all happened just before the Easter holidays at my school in a small seaside town of Cirvan in Scotland. A couple of friends and I were mucking about on the school's Apricot Xen PC-compatible when all of a sudden I came up with this great idea to teach myself some PC machine code. My two friends who are literate in all things PC showed me how to print my name in a .COM file and I was impressed - well I didn't think PCs could do that! So, being a bit idiotic, I suggested we made a longer message along the lines of: "HELLO MR (Name deleted to protect the stupid), THIS COMPUTER HAS BEEN INFECTED WITH A VIRUS, OH, BY THE WAY DON'T TOUCH THE HARD DISK...."

Just then the physics teacher walked in. We sixth years were subsequently booted out of the computer room. Cut down in the prime of our last year, well, last two months!

That, however wasn't the last of it, oh no. We were called back to the computer room to explain our actions.

The teacher TYPED the file out. He wouldn't run it! He then found the message, and deleted the program from the disk and asked, quite seriously, "What's all this behind it? This could not be the actual virus program after the message - how can I be sure that it is not?"

The truth of the matter is, all we wrote was a program which prints a message on screen, albeit written in machine code. It was a PRINT statement, and since when was it 'bad news' to type in:

```
10 PRINT "Hi I'm Vic The Virus"
20 END
```

I hope that you print this letter, not for fame (and fortune?) but just to prove that people in 'authority' are not always right.

Sloan Kelly
Cirvan, Ayrshire

Sorry old chap, but I'm with the teacher.

He had no way of knowing if it was a virus or not – it certainly looked like one, and since you obviously thought it was amusing to make a fake virus it's reasonable to assume that if you had the technical know-how you'd find it funny to write a real one.

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Full details on next page

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Games Pick a pair of games

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***Myth* was rated at 90% by Keith Campbell of Commodore User. He said "Don't be put off by it being a mini-adventure.... text undreamed of in those bygone days."**

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DON'T MISS AMIGA FORMAT NEXT MONTH

IN A NEWSAGENT NEAR YOU ON THURSDAY 13TH OF JULY

Among the many features packed into the bubbling launch issue you'll find:

VIDEO TITLING

An overview of what you can do with a genlock, video recorder, video camera and the right software. Plus a look at how Leicester firm Alternative Image use their Amiga A2000s to produce corporate promotional videos.

COMMODORE PERSPECTIVE

Dr Rahman Haleem, Commodore's technical support manager, gives his views of the Amiga in the future. Haleem reckons there hasn't been a game written that shows off the Amiga's true capabilities.

A2500 ON TEST

Exclusive look at Commodore's forthcoming super Amiga. Beefy 68020 processor, enhanced chip set, 40Mb hard disk, 2Mb RAM, Kickstart 1.4... it's a real power machine.

HOT SHOTS

The *Amiga Format* team, which consists mainly of the award-winning ex-*ACE* crew, gives its opinions of what are the best 10 Amiga games to date.

PLUS

880K of games, demos and utilites on disk, reviews of the latest music and graphics packages, pages and pages of the latest games and some fabulous competitions. All this for £2.95!

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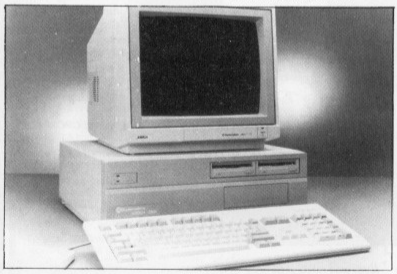

LOOK OUT FOR ST FORMAT NEXT MONTH

IN A NEWSAGENT NEAR YOU ON THURSDAY 20TH OF JULY

Jostling for position in the throbbing first issue will be:

THE ATARI STORY

An insight into Atari past, present and future. Including a look at the machines of the moment – the laptop ST and Mega 1. There's also the Atari Show which promises many surprises.

FRIGHT NIGHT

Machines that go bump in the night! Fantasy? Or does it really happen? Possessed silicon – a special investigation into unexplained computer phenomena.

DIY PROJECT

Build a device to display exactly what your disk drive's head is getting up to. A simple project that'll only cost around £15 in parts.

CASSANDRA COMPLEX

Interview with American techno-rock group Cassandra Complex. How and why they use 1040s connected to their musical instruments via MIDI.

PLUS

Over 800K of demos and utilities on the cover disk, your chance to win spectacular *Thunderblade* arcade machine prize, the hottest games, graphics tutorial, scene from the States, comms column, new adult comic strip – the issue's alive.

Miss it at your peril!

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(Choccy Egg)

If you have played the classic computer game Chuckie Egg you hardly need an introduction to this "cracking" sequel, which takes us from the hen house to the chocolate Easter egg.

This eggcellent game is guaranteed to be salmonella free on your Amiga, ST or PC machines. It will give hours of entertainment and no matter how many times you unwrap the disc and sample the goodies it will neither make you fat nor rot your teeth!

CHUCKIE EGG II

Available on Atari ST/Amiga/Spectrum/Commodore/Amstrad soon on PC

Screen shots from Amiga Version

CHUCKIE EGG

Available on Atari ST/Amiga/Spectrum/Commodore/Amstrad /Atari/MSX/Dragon/BBC/Electron soon on PC.

Screen shots from Amiga Version

Review of Chuckie Egg by Computer Games Week

Gameplay 90%, Grafix 85%, Overall 89%

P'n'C Pick & Choose

Cheques & P.O. to: Pick & Choose (F.G.) Ltd, 45 Bury New Road, Manchester M8 8EG, Tel. 061 831 7922

P'n'C Pick & Choose

Bloodwych

ARGUE! BARTER! LIE THROUGH YOUR TEETH!!!

Atari ST Screen Shots

Amiga	£24.99
Atari ST	£24.99
Spectrum (tape)	£9.99
Spectrum (disc)	£14.99
Amstrad CPC (tape)	£9.99
Amstrad CPC (disc)	£14.99
Commodore 64 (tape)	£9.99
Commodore 64 (disc)	£12.99

As the people of the Bloodwych awake to a new dawn, they find a stranger in their midst – from one of many races he has come. His task; to halt the demon that lies dormant within the Castle of the Bloodwych.

Unification of the Crystals of Sanguis will secure the Behemoth in his lair for all eternity. Should they remain separate, then he shall rise to bring darkness into the world.

This unique role-playing fantasy game allows greater interaction with the environment than has ever been seen before. Argue, barter, negotiate – even lie through your teeth! The fully implemented personalities of all the characters in Bloodwych allows a rich style of role-playing that has only been dreamt of.

With one or two player simultaneous mode, this is the game that you've been waiting for. Bloodwych for those that dare!

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